The Veterinary Record

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 48. NOVEMBER 26, 1932. VOL. XII.

THE VETERINARY PROFESSION AND THE MILK SUPPLY

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C.V.O., COUNTY COUNCIL OF THE WEST RIDING OF YORKSHIRE

In a letter under the title of "Safe Milk" which appeared in the *Lancet* of September 24th last, a correspondent raised the question as to what sort of milk the medical profession should recommend. The matter is of supreme importance, for doubtless the public is, or it certainly ought to be, largely guided by the advice of its doctors, and yet it is surprising to note how few members of the medical profession know the difference between the various designated milks.

The correspondent, after quoting certain figures from several authorities showing the extent to which milk is said to be contaminated with tubercle bacilli, comes to the following conclusions: (*a*) that there is no absolute safety anywhere; (*b*) that ordinary milk comes out better than Grade "A"; and (*c*) that the more expensive type, Grade "A" (T.T.) appears rather less safe than pasteurised. To the first assertion I would reply that this is true of almost every foodstuff we consume and does not apply to milk alone. Whatever precautions may be taken in the production of any article of food, the human element with its liability to error enters in, and thus, this conclusion requires no further argument. To the second I would take exception. The statement is based on investigations published by Dr. Roodhouse Gloyne in *Tubercle*, which it is said showed that no less than 10·2 per cent. of Grade "A" milk contained tubercle bacilli. I am not one holding any special brief for Grade "A" milk and I have not seen the article referred to, but I would strongly dispute the figures given and can only conclude that they were arrived at after the examination of too small a number of samples to be fully representative. There is ample evidence to show that where Grade "A" herds are examined by expert veterinarians the milk produced is reasonably safe and certainly is not contaminated to anything like the extent mentioned. The third conclusion, also apparently based on the same article, calls for some explanation. Dr. Roodhouse Gloyne is credited with having published figures showing that Grade "A" (T.T.) milk is contaminated with tubercle bacilli to the extent of 3·8 per cent. This is a serious statement to make and likely to mislead the public. Without going deeply into the matter at present I would quote from the Annual Report of the Chief Medical Officer of the Ministry of Health for 1931. We are here informed that in England and Wales there were 195 "Certified" and 246 Grade "A" (T.T.) herds licensed last year. This gives a total of 441 farms where the cows should be guaranteed to be free from tuberculosis, and the number of samples of milk produced from these farms found to contain tubercle bacilli was eight. Now, as milk from each farm must have been examined many times during the year the percentage of samples infected must have been much below the figure quoted. The comparison with pasteurised milk was made from findings of the Manchester Corporation that 2·2 per cent. of pasteurised milk samples were positive to tubercle bacilli.

There never was a time when the question of our milk supply was so much before the public as is the case to-day. The People's League of Health have recently completed an exhaustive enquiry regarding its contamination with tubercle bacilli, the Royal Institute of Public Health are considering what steps it can take to improve the milk supply, the Milk Reorganisation Committee are dealing with the same question and local authorities up and down the country are much concerned with the present state of affairs. Despite so much having been written on the subject and the difficulty of putting forward anything new, I venture to hope that a short review of the present-day milk supply, especially as it concerns tuberculosis, may still be of interest to your readers and may even stimulate further discussion on this all important question. Speaking generally, the veterinary profession is agreed that we have not been given the opportunity of taking our proper place in the supervision of our country's milk and that were this universally recognised there would be an immense improvement all round. With this I am in full agreement. On the other hand, disagreeable as it may be, we ought to ask ourselves—do we all use even the limited powers we possess to the best advantage and if not, what can we do to remedy any shortcomings?

MILK PRODUCED UNDER THE MILK (SPECIAL DESIGNATIONS) ORDER, 1923

For the purpose of this article we may consider "Certified" and Grade "A" (T.T.) milks

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together. On the whole, the cleanliness of these milks, as shown by the bacterial counts taken, is well up to standard and it is satisfactory to learn from the report of the Chief Medical Officer of the Ministry of Health that "No samples of graded milk taken under the Food and Drugs (Adulteration) Act, 1928, were reported to be deficient in milk fat or adulterated with added water." Not so satisfactory is it, however, to be told that even eight samples of milk from supposed tubercle-free herds were found to contain tubercle bacilli and further consideration of this is called for. The Chief Medical Officer informs us that on investigations being carried out to trace the source of the infection tuberculous cows were found in four instances. In one case the infected cow had been retained in the herd several weeks beyond the six-monthly-test; in another a high proportion of reactors was found due to replenishing the herd with cows from non-tested herds which had passed one test only, and in yet another case several reacting cows had been retained in the herd for nearly three weeks after they had been tested and found to react. In one instance the licensee was purchasing ordinary milk from outside and thus by his deeds he brought discredit, which was undeserved, on graded herds. That there should be any breakdown in the freedom of such milk from tuberculosis must in the eyes of the public appear to cast a reflection on the veterinary profession, which is responsible for testing the cows. It should be pointed out—and this is evidently recognised by the Chief Medical Officer in his report—that under the regulations as they exist to-day, a licence may be and often is, granted to a herd indicating its freedom from tuberculosis as the result of one single tuberculin test—provided only that all reacting cows are first removed from the herd. In already licensed herds new animals may be added after having passed one test only even when they do not come from a tubercle-free herd. It is well known that cattle in the early incubative stages of the disease may fail to react to the test and it is always possible that such animals may become infective before the next general prescribed test of the herd is carried out. Yet the veterinary surgeon who tests and is considered responsible for the freedom from disease, has no power to prevent the inclusion of such animals in the herd. It would appear that the time is now ripe for a tightening up of the regulations both as regards the granting of licences and the admission of new animals to the herds. Not only would this be a safeguard to the public, but also to the herd owners themselves, who would be saved much unnecessary loss and disappointment. In the writer's opinion it would be well if the Ministry of Health would hand over the power to grant licences to the local authorities (county councils and county borough councils) or at least to those of them who have staffs to supervise them properly. This change would only lead to what has always been the case in Scotland since the institution of such licences, where the control has been of a high order and the results have fully justified the action of the Scottish Board of Health. Another danger which is frequently responsible for tuberculous cattle being found in so-called free herds is that there is no compulsory standardisation of tuberculin and any brand may be used. The Chief Medical Officer in his report above quoted makes the following statement: "No less than 16 different brands of tuberculin have been used in tests carried out under the regulations laid down by the Milk (Special Designations) Order, and about many of these no information is available as to their potency or reliability." The veterinary profession has long been agitating for compulsory standardisation of tuberculin and that it should be made illegal to use any tuberculin not certified to be so standardised. It has approached the Government on more than one occasion to bring in legislation for this purpose, but so far without success. Other alterations of the Order, which in the opinion of our profession would give a greater security against accidental infections, are also called for.

On the other hand, the Chief Medical Officer makes some very pointed remarks about the manner in which tuberculin tests have been carried out in some instances, which are very painful reading. It will suffice to quote one sentence only, which runs:—

"Many such special re-tests of herds which have terminated unfortunately for the owners would have been unnecessary if the local veterinary surgeons had been thoroughly acquainted with the technique of the test before undertaking such work. Not without reason has it been urged that no veterinary surgeon should be allowed to carry out this test, at least in licensed herds, unless he has had special experience and training in its application and technique."

This slur on our profession broadcast throughout the country in the above Report, should not be allowed and it is more than time that we ourselves should take the matter seriously to heart and consider what steps are necessary to remedy the present state of affairs. The sooner the question is enquired into the better—failure to recognise it is only like the proverbial ostrich hiding its head under the sand and can only bring discredit on the test and even on our profession as a whole. If we are to take our proper position in veterinary public health matters, statements such as these should be made impossible, and it is only our own profession which can do so.

"Grade A" Milk.

While the bacterial standard of this milk is, as a rule, well within the margin allowed—which, when all is said and done, is only a comparatively low one—it is true that tubercle bacilli have been found in samples from time to time. A careful quarterly clinical examination along with the examination of all new cows admitted to the herds as is insisted upon by certain licensing authorities, ought to be a guarantee that the milk is reasonably safe. There is, however, no actual guarantee, expressed or otherwise, that tubercle bacilli may not be present and in the opinion of many no milk should be included in the Designations Order that is not tubercle free. If the system adopted by some authorities of "group sampling" the milk at regular periods were insisted on, the results would probably be much better than they are to-day and the milk consequently safer.

Pasteurised Milk.

So much has been heard of late about the merits of pasteurisation that the statement quoted, that the Manchester Corporation found 2·2 per cent. of such milk to contain tubercle bacilli, must be a shock to many of its advocates. As it is said that efficient pasteurisation is capable of destroying tubercle bacilli and rendering infected milk safe for consumption, it must be concluded that the methods of pasteurisation must be at fault to allow of such results. Too often is it found that the bacterial standard of pasteurised milk is unsatisfactory. In the Annual Report of the Chief Veterinary Officer for Edinburgh for the Year 1929, the following words occur:—

"Of the 'Pasteurised' milk samples tested" (33 in number) "nine failed to conform to the required standard in so far as concerns the general enumeration of living bacteria present. When, however, the additional 'Presumptive coli test' was applied to the pasteurised milk samples—and this test is applied as a routine test to all milk samples in this laboratory—it was found that living coliform organisms were present in at least sixteen of the pasteurised milk samples in the quantities tested, namely, one-tenth of a cubic centimetre—this being a high percentage."

Likewise in the Report for 1931, the following statement is made:—

"Four of the pasteurised milk samples" (namely, from 28 examined) "failed to conform to the required standard in so far as concerns the general enumeration of living bacteria present. The Milk (Special Designations) Orders do not specify any requirement in respect of coliform contamination in relation to pasteurised milk, but, as a routine measure, the coliform test is applied to all milk samples. Coliform organisms were demonstrated to be present in 11 samples of pasteurised milk, representing 39·2 per cent. of the samples examined."

The County Medical Officer for the West Riding in his Report for 1931 shows that 65·7 per cent. of the pasteurised milks supplied to schools failed to come up to the standard of 100,000 bacteria per c.c. or any coliform bacteria in 1/100 c.c. These are examples taken at random, but they correspond closely to results obtained by many other public health authorities. The recent Report of the People's League of Health, in discussing the death-rate from non-respiratory tuberculosis, gives the following striking figures:—

"Thus during the 50 years 1851-1900, the death rate fell by only 23·1 per cent.; between 1900 and 1909, however, it fell by 18·7 per cent.; between 1909 and 1919 by 32·5 per cent.; and between 1919 and 1929 by 37·6 per cent."

The fall of the death-rate to such an extent from this form of tuberculosis causes one to ponder and ask if it is now really worth while to push pasteurisation with its many drawbacks too far or whether other and perhaps better methods may not be possible further to reduce the incidence of this type of disease.

ORDINARY MILKS

The cleanliness and safety of ordinary ungraded milks depend very largely on the keenness with which local authorities carry out the powers already given to them. While it is generally accepted that our milk laws are far from the ideal, if even those we now possess were fully utilised the improvement of our market milk would be enormous. According to the Report of the People's League of Health, about 6·7 per cent. of all milk contains living tubercle bacilli. The incidence of this infection varies enormously with the district and probably chiefly depends on the system of farming and the age of the cows kept. This has been strikingly brought home to the writer in the West Riding of Yorkshire where in this single county alone udder tuberculosis is almost unknown in certain districts and present to an alarming extent in others. There can be no doubt that routine inspection of cows by trained veterinarians largely reduces the incidence of tuberculous milk being sold. The value of this work can only be actually proved if after the veterinarian has made a clinical examination of a herd and taken samples of milk from any suspected cow or cows for special examination, a general "herd" sample (*i.e.*, milk from each functional teat of each cow) could be submitted to the biological test as a check on the thoroughness of the work. Such figures, which should embrace several hundreds of herds of all classes, are urgently called for. Unfortunately, in practice, it is extremely difficult and costly to obtain such results, but to a limited extent it ought to be possible and it is to be hoped that any member of the profession having such figures will publish them. In the West Riding the writer has collected the results of investigating

sources of tuberculous milk or where tubercle bacilli in a milk sample were suspected, in 272 cases. In 42 of these investigations 48 cows giving tuberculous milk were detected by clinical means alone and as all other cows on the farms involved appeared healthy the milk was unfortunately not "group-sampled" as a control. These results, satisfactory as they are, cannot be cited for the purpose desired as the work was not controlled by a biological test.

In the remaining 230 investigations—involving the sampling of 3,882 cows—the biological test was carried out in all cases, the milk usually being tested in groups each containing milk from about six cows. The results obtained agreed with the results of the clinical examination of the herds in 89·14 per cent. of cases, while in 10·86 per cent. of the investigations cows giving tuberculous milk were not detected on the first visit and were only finally brought to light after a group sample had proved to be positive. The positive group samples were responsible for the diagnosis of 25 cows in all or 0·64 per cent. of the cows examined, while 123 affected cows were picked out by clinical means.

It has continually been pointed out by those who know, that bulk sampling should be used along with and as a check on routine inspection, as it may pick out the few obscure cases not sufficiently developed to be detected clinically. The somewhat high percentage of "misses" in these investigations may thus be accounted for, but if check samples were taken after ordinary routine examination the margin of error should be considerably reduced. In five of the cases where a group sample came out positive a cow was also found by clinical means which may to some extent have misled the examiner into a sense of false security. Many of these milk investigations are most puzzling and 100 per cent. successes cannot be looked for.

In the same period during which these investigations have been carried out, the veterinary staff as a result of routine herd inspection alone over and above those animals already mentioned, have detected 1,733 cows coming within the scope of the Tuberculosis Order, 859 of which had tuberculosis of the udder. In other words, out of 1,929 cows suffering from scheduled forms of tuberculosis detected on inspection (not including any reported by their owners) 1,055 had tuberculosis of the udder. Of those with udder tuberculosis, 1,030 were diagnosed by the examination of milk taken from an individual quarter and 25 as the result of tracing down from a positive group sample taken during investigations.

The percentage of tuberculous West Riding milks detected by local authorities and others is certainly lower than many published figures from other areas. Out of 720 samples of ordinary market milk examined recently at the County Bacteriological Laboratory, only 19, or approximately 2·64 per cent., proved tuberculous. These figures are somewhat better than those published by the County Medical Officer in his annual report for 1931 in which he tells us that out of 527 samples of ordinary market milk produced in the West Riding administrative area, 20, or 3·77 per cent. of those submitted to the biological test for tuberculosis were found to contain tubercle bacilli. The Veterinary Officer for the City of Bradford has kindly furnished me with figures showing the result of bulk sampling milk produced in the West Riding over a period of years. Of 1,132 samples examined biologically from 1917-1928 inclusive, 4·59 per cent. were found to contain living tubercle bacilli, while out of 792 samples examined between 1929-1931—when herd inspection of the cows in the West Riding was in full swing—the positive samples were reduced to 2·46 per cent.

When all is said and done, the only way to eliminate the danger of tuberculous milk is to eradicate the disease from our herds, but an active campaign against its grosser forms if carried out equally all over the country, would have a great and probably an increasing effect. One method whereby much less udder tuberculosis would be found is to limit the age of cows which supply milk. This form of disease is at its minimum in first- and second-calf heifers, but its incidence rapidly increases with age and the number of calves a cow has produced. There can be no doubt that Begg of Lanark was on right lines when he suggested that cows over a certain age—I think it was ten years— should not be kept for milk production unless in tubercle-free herds, and probably this age is too old.

I cannot conclude these somewhat rambling notes better than by giving the following figures which strongly support this view. In a certain district where almost entirely young cows are kept—those which have produced their third calves being sold—in two years, as the result of 36,765 clinical examinations being carried out, only 21 cows with tuberculosis of the udder were detected and a further 14 were reported by their owners from the same district. This gives a total of 35 in all, or 0·09 per cent. of the cows. In the district of a certain rural council and a part of the larger area mentioned, where the approximate number of milking cows is 2,700 and the herds, though small, are mostly self-contained, in two years (during which time each cow was examined at least twice) only one tuberculous udder was found. In comparison to this, the same veterinary officer who was responsible for the supervision of these cows was transferred to another district more urban in character and where older cows were kept.

In this new district, in a short time, after examining 9,731 cows he detected, purely by clinical means, no fewer than 45 cows with tuberculosis of the udder, or 0·46 per cent. of the cows examined. In addition, 27 more cows suffering from other scheduled forms of tuberculosis were also found.

ADDENDUM

Since writing the above, a further letter, written by Norman C. Wright, of the Hannah Dairy Research Institute, Kirkhill, Ayr, appeared in the *Lancet* of November 5th, giving certain figures regarding "Certified" and Grade "A" (T.T.) milks in Scotland. He informs us that three years ago 550 samples of milk from tuberculin tested herds, supplied to Glasgow hospitals, were examined for tuberculosis by the biological test and not one was found to be positive. Within the last two years as the result of a special investigation carried out at the Hannah Institute, out of 750 samples of milk coming from almost all the "Certified" and Grade "A" (T.T.) herds in Scotland, only one was proved to contain living tubercle bacilli and the source of this infection was rapidly traced and accounted for. The tests were very thorough, for duplicate guinea-pigs were inoculated, the one being killed after four weeks and the other after eight weeks. We are informed that since 1923 as the result of 28,221 tuberculin tests made, only 423 proved positive, showing 1·5 per cent. of the cow population of the tested herds to have reacted.

The assumption arrived at can best be given by quoting from his letter: "Since it is probable that not more than 1 per cent. of such reactors can be assumed to secrete infected milk, it follows that the actual proportion of reactors in licensed herds which might be considered to be actively dangerous, works out at 1 per cent. of 1·5 per cent., or three in every 20,000 animals." These conclusions certainly do not bear out the statements made by Dr. Roodhouse Gloyne. The letter, moreover, stresses the freedom of these graded milks from causing other diseases to those consuming them and deplores the fact that the demand for such milk is so much below the supply.

PASTEURISATION OF MILK: OPPOSITION OF FARMERS

The Council of the National Farmers' Union, meeting in London on November 17th, endorsed a resolution of its Milk and Dairy Produce Committee opposing the principle of the compulsory pasteurisation of milk, and expressed the opinion that the acknowledged improvement in the quality of the raw milk supply could best be maintained by periodical examinations of dairy herds by veterinary inspectors of local authorities.

CESTODES FROM DOMESTIC ANIMALS IN MALAYA, WITH DESCRIPTIONS OF NEW SPECIES

G. B. PURVIS, F.R.C.V.S.

The following table shows the names of the hosts of some Cestodes which I have encountered in Malaya:—

Host.	Cestode.
Sheep and goat	*Moniezia expansa* (Rudolphi, 1810).
Dog	*Tænia pisiformis* (Bloch, 1780).
	Tænia sp. other than pisiformis (1).
	Dipylidium caninum (Linnæus, 1758).
	Dipylidium sexcoronatum von Ratz, 1900.
	Dibothriocephalus sp. (2).
Cat	*Tænia tænæiformis* (Batsch, 1786).
	Dipylidium pasqualei, Diamare, 1893 (3).
	Dipylidium caninum (Linnæus, 1758).
	Dibothriocephalus sp. (2).
Fowl	*Raillietina* (*Raillietina*) *tetragona* (Molin, 1858).
	Raillietina (*Raillietina*) *volzi*, Fuhrmann, 1905.
	Raillietina (*Paroniella*) *acanthovagina* n. sp.
	Raillietina (*Paroniella*) *southwelli* n. sp.
	Raillietina (*Fuhrmannetta*) *echinobothrida* (Mégnin, 1880).
	Raillietina (*Skrjabinia*) *cesticillus* (Molin, 1858).
Duck	*Hymenolepsis anatina* (Krabbe, 1869).
Dove (caged)...	*Raillietina* (*Raillietina*) *paucitesticulata*, Fuhrmann, 1909.

Remarks.

(1) It appears that the species of *Tænia* in the dog, other than *pisiformis, echinococcus,* and perhaps one other, whatever the cystic stage, cannot be morphologically distinguished if sufficient material be examined, the characters upon which the specific descriptions are based being inconstant as well as overlapping.

(2) The literature (like that referring to the species of *Tænia* of the dog) is so unsatisfactory that no determination seems possible.

(3) There seems to be no difference between this species and *Dipylidium chyzeri* von Ratz 1897. In counting diagonal and more or less irregular rows of hooks on a rostellum it is very

doubtful if 16 and 14 rows can be distinguished. If they can be, it is difficult to prove that two rows have not been lost from the rostellum of specimens which supposedly bear only 14 rows of hooks.

In the material of this species examined, what appeared to be the last segment was found to bear several cirrus sacs and vagina at each side. These organs numbered respectively on the two margins 4 + 4 and 4 + 4, and 3 + 4 and 4 + 5, in two different specimens, the vagina, in the latter, alone appearing posteriorly. This abnormal segment therefore represented reduction of a number of segments, several having fused or run together to form a single posterior pseudo-segment which was not noticeably larger than one would expect from the size of the next few anterior segments of each specimen.

All the material was collected in the State of Kedah to the North, as far as the State of Negri Sembilan towards the South, of the Malayan peninsula.

DESCRIPTION OF NEW SPECIES

(1) *Raillietina* (*Paroniella*) *acanthovagina* n. sp.

Host.—*Gallus gallus domesticus*—the common fowl.

Habitat.—Small intestine.

Locality.—State of Perak, F.M.S.

The total length of the longer of two specimens (stained) is 8·4 c.m. and the maximum breadth 1·1 m.m. at the segment 40th from the posterior end; the strobila comprises some 400-450 segments, though in both specimens there appeared to have been loss of some of the gravid proglottides. External segmentation becomes visible about 1·1 m.m. behind the scolex, but the segments cannot be counted until about 1·5 m.m. from the head. In all the segments present their width exceeds their length. The scolex is 345 μ wide with unarmed suckers 140-160 μ in diameter and with a rostellum 130 μ in diameter armed with about 360-400 hooks arranged in a double row, and each segment measured 8 μ in length. No accessory spines were present.

Male organs.—Rudiments of the genitalia first appear about 6 m.m. from the head and testes become visible at about 1·6 c.m. There are 25-28 testes, each measuring 53-66 μ in diameter when at their full size and lying posterior to and at both sides of the female glands. Usually five are on the poral side, two immediately posterior to the ovary and the remainder on the aporal side. The vas deferens is prominent, being much coiled, lying anteriorly in the segment and becoming filled with spermatozoa throughout its entire length, vesicula seminales externa and interna being absent. The cirrus sac is long and almost cylindrical, tapering gradually at its external end. In a straight line it attains maximum dimensions of 264 μ long × 43 μ wide. Its course is not straight, for while the internal end is at approximately right angles to the lateral margin of the segment, at about a third of its length it turns to run postero-laterally and, except in the last few segments, at about the last quarter of its length it curves slightly more laterally. The wall is only slightly muscular. The sacs at their maximum size cross the longitudinal excretory vessel.

The genital pores are unilateral. A large genital atrium is present with a small sacculus accessorius opening anteriorly from it.

Female organs.—Only a few points merit mention. The vagina lies posteriorly to the cirrus sac, is thick walled and lined closely with spines; this part measures 30 μ in breadth by about 87 μ in length. With the entrance of spermatozoa the next part of the vagina can be seen to be lightly coiled and in some segments nearly all the spermatozoa lie in a long spindle-shaped part which is apparently not a true receptaculum seminis but merely a temporary dilatation.

The uterus spilts up finally into numerous egg capsules each containing only one ovum; some of the capsules occur lateral to the longitudinal excretory vessels.

Types in my own collection.

(2) *Raillietina* (*Paroniella*) *southwelli* n. sp.

Host.—*Gallus gallus domesticus*—the common fowl.

Habitat.—Small intestine.

Locality.—State of Perak, F.M.S.

The total length of stained gravid specimens ranges from 5·1 to 6·5 c.m. with a maximum width of 1 m.m., the whole strobila consisting of about 275-295 segments. Segmentation becomes visible close behind the scolex. Only the last 3-5 segments are longer than they are broad. The scolex is 200-230 μ in diameter, and with the rostellum retracted 85 μ in width, but one specimen with everted rostellum has scolex and rostellum of diameters of 185 and 80 μ respectively. The rostellum carries about 100-120 hooks, each 8-9·6 μ long, arranged in two rows. No accessory spines are to be seen. The suckers are 83-87 μ in diameter and are armed with 2-3 rows of small hooks.

Male organs.—Rudiments of sex organs appear first about 1·9 m.m. behind the scolex but testes are not distinguishable until about 9 m.m. from the head. There are 20-28 testes (usually 26) in each segment with a diameter when fully developed of 39-44 μ. They are situated laterally to the female glands at each side and posteriorly to them; 5-9 being at the poral side, 2-4 posterior, and the remainder at the aporal side. The genital pores are unilateral and situated in the anterior half of the margin while in older segments they become roughly central on the margin.

The genital atrium is very small and no sacculus

accessorius is present. The cirrus sac is pear-shaped, short but fairly wide, measuring at its maximum 83 × 44 μ. In one specimen they may reach to the longitudinal excretory canal, but in another may seldom do so. Small vesicula seminales externa and interna are present.

Female organs.—Posteriorly to the cirrus sac the vagina is dilated to form a small spindle-shaped receptaculum seminis. The uterus finally splits up into numerous egg capsules each containing only one ovum: some of these capsules lie externally to the longitudinal excretory vessels.

I have named this species after Dr. T. Southwell of the Liverpool School of Tropical Medicine, as a token for his help and guidance.

Types in my own collection.

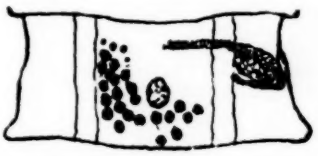

Fig. 1.—Raillietina (Paroniella) acanthovagina n. sp. Segment 662 × 255 μ.

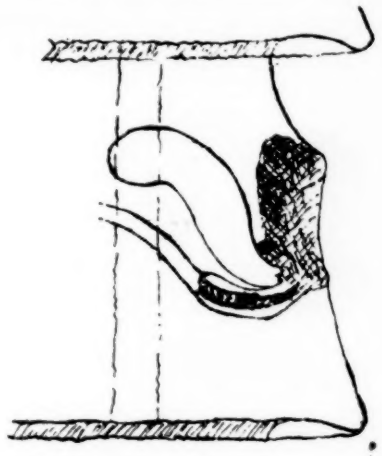

Fig. 2.—Raillietina (Paroniella) acanthovagina n. sp. Segment 390 μ long.

Fig. 3.—Raillietina (Paroniella) southwelli n. sp. Segment 594 × 187 μ.

In the following table I have summarised the principal characters of *Raillietina* species belonging to the subgenus *Paroniella* from Galliforme birds.

Species	facile Meggitt	magninumida Jones	numida Fuhrmann	tragopani (Southwell)	urogalli (Modeer)	acanthovagina Purvis	southwelli Purvis
Length of strobila	4 m.m.	10-15 c.m.	2 c.m.	8·5 m.m.	35 c.m.	8·4 c.m.	6·5 c.m.
Maximum breadth of strobila ...	·70 m.m.	1·3 m.m.	·220 to ·240 m.m.	·60 m.m.	4 m.m.	1·1 m.m.	1 m.m.
Number of rostellar hooks	85	150-160	160-180	46	160	360-400	100-120
Length of rostellar hooks	10·3-12μ	8-10μ	9-10μ	10μ	14-16μ	8μ	8-9·6μ
Number of testes in each segment	9-10	13-18	7-10	6-7	130	25-28	20-28
Length of cirrus sac	180μ	280-350μ	140-160μ	250μ	110-120μ	264μ	83μ

Encouragement of Horse Breeding*

AN INTERNATIONAL REVIEW

Belgium

Of the total receipts from course, totalisator and agency betting taxes amounting to 19,000,000 francs in 1931, one million francs were allocated to the "Association pour l'encouragement en Belgique d'elevage du Cheval de pursang et de demi-sang."

Czecho-Slovakia

Subsidies granted by the State to encourage horse breeding are not derived specifically from the proceeds of betting taxes which, like all other taxes, are collected by the Ministry of Finance. Provision is, however, made in the budget of the Ministry of Agriculture each year for the purchase of horses, for subsidies to horse breeding establishments (draught, riding and race horse) which belong to the State, and for subsidies for the encouragement of the sport of horse racing. The total sums set aside since 1921 vary from 46 to 18½ million crowns per annum, the peak being 58 million crowns in 1922. The total amount of the subsidies which the Jockey Club has received from the Ministry of Agriculture since 1921 to the end of 1931 is 439,770 crowns, making an average of 40,000 crowns a year. In addition, the Club has been granted a loan, free of interest, amounting to 3,100,000 crowns. There is no Pari-Mutuel system in the country, but the operations of bookmakers and totalisator are governed by a decree. A new law was passed by the Government in 1920 to the effect that the 5 per cent. State tax on bets which had been in force since 1890 would be increased to 10 per cent.

France

The proportion of the State Tax on totalisator receipts which was allocated to the "Direction des Haras" (breeding studs) in 1930 for prizes and grants in connection with horse-racing and horse-breeding was 27,660,583 francs. The

* Information as to how some foreign nations ensure that the totalisator and betting contribute towards the welfare of horse breeding, with details of the extent and methods of encouragement. Published (Leaflet No. 28) by the National Horse Association of Great Britain, 12, Hanover Square, London, W.1.

"Haras" department maintains 21 centres for 3,222 stallions and one for 60 mares. It issues diplomas and certificates to French stallion owners, and in conjunction with departmental and municipal authorities and hippic societies, organises prize meetings and competitions and gives prizes in the case of saddle horses.

It also subsidises various equine associations, including horse-racing societies, and in 1930 contributed approximately 5 million francs as awards at prize meetings for stallions, brood mares, foals and fillies, 1½ millions towards the Paris Horse Show, a million for horse training competitions, 2½ millions in prizes for approved stallions and asses, 3½ millions to breeders, 2 millions for horse-racing and 700,000 francs to horse-breeding. In 1930, 10,617 animals, including 672 mules, were purchased for the Army. In 1931 a new Department was formed for the purpose of collecting and furnishing information with a view to increasing the export of French-bred horses.

As a result of the substantial State assistance received the French Breeding Industry has been able to maintain its exports well over recent years, thus:—

1922, 5,441; 1927, 6,233; 1930, 5,230.

Germany

A tax is collected on both totalisator and bookmaker betting in Germany, by the Reich Government, which distributes it to the various States, and the allocation for horse-breeding purposes is then made by the State Governments. The German States receive 96 per cent. of the collected betting tax, and undertake to expend one-third thereof for purposes of horse breeding. 23,000 stallions are kept by the State for light horse breeding, while stud farms are subsidised by the Government, a proportion of the betting tax being earmarked for breeding.

The allocations during recent years have been considerable. Prussia has for the past three years allocated her entire share of the tax to subsidies and prizes for horse breeding. The total so allocated in Prussia alone has amounted to no less than 26,118,000 marks (or nearly £2,000,000 at present exchange rates).

Hungary

The 1930 Census showed 900,000 horses. Great encouragement is given to light horse breeding by the Government, and breeding has consequently developed considerably since the War.

Irish Free State

A scheme for the encouragement of breeds of horses is in operation, applying to thoroughbred and other stallions calculated to produce weight-carrying hunters and high-class harness horses, and to Irish draught and half-bred stallions, Clydesdales and Shire stallions. A joint fund available under the scheme is, after the expenses of administration have been provided for, applied solely for nominations of mares. In the event of there not being a sufficient number of stallions in any county, assistance is rendered to approved applicants to buy suitable stallions through Government loans.

Italy

Under a recent decree, there has been instituted under the auspices of the Ministry of Agriculture the "National Union for increasing the breeds of horses" which is to include the Italian Jockey Club and various other bodies interested in saddle and race horses. The National Government has taken as its precept "The encouragement of the extension and improvement of horse breeding for the purpose of making it more suited to the agricultural, commercial and military requirements of the country; to give uniformity of character and of type to the products of the various horse-breeding districts on the basis of rational and permanent rules previously decided upon."

One thousand two hundred and eighty-five stallions have been collected at eight stations and are distributed and available during the service season, while up to the present 86 special remount stations have been formed for selected mares. Approximately 4,000 mares are loaned to farmers and become their property after producing four foals suitable for military purposes during a period of time not to exceed eight years. In 1926, 29,000,000 lire (*i.e.*, £450,000 at present exchange rates) was voted to be expended over a period of years in encouraging breeding.

The private stallion industry is controlled in that no person may allow mares or donkeys to be covered by stallions that have not been approved. Facilities exist by means of special financial assistance for the purchase by private individuals of excellent stud horses. Foals which are suitable for military purposes are placed at the disposal of the military authorities, who have the right to purchase them at the local market price up to the age of three years. Special exhibitions, various prizes for the good condition of colts, functional tests and horse shows complete the series of measures which the National Government by means of the two chief interested Ministries (*viz.*, Agriculture and War) has adopted for the improvement of horse breeding. It is claimed that the country is completely independent of others in connection with the supply of horses for the Army.

Japan

A tax is levied by the Japanese Government on all totalisator receipts for allocation to the breeding and improvement of horses. The sums thus obtained average in the neighbourhood of two million Yen per annum.

New Zealand

A proportion of the totalisator investments goes to the Racing Clubs, and is utilised for increasing the stakes and various other purposes, and thus indirectly assists the horse-breeding industry. In 1930 £559,589, and in 1931 £395,955 was retained by the Racing Clubs.

Poland

Of the proceeds from the Polish Parimutuels, approximately 13 per cent. is set aside for special allocations by the Minister of Agriculture. Of this a substantial proportion has recently been allocated to Breeding Premiums, competitions, point to points, purchase of horses for breeding purposes, State horse-breeding establishments, publication of stud books, etc., and other aids to private horse breeding. For instance, during the six months ending 1931, 566,334 zlotys were by this means allocated to competitions and point to points, 483,150 to the purchase of horses for breeding, 449,529 for State horse-breeding establishments, 484,845 for publications, and 536,742 to other aids to private horse-breeding and agricultural horse shows. In addition to this, 4,732,720 zlotys were allocated to racing prizes and breeding premiums. (Note: One zloty equals 5½d. at par.)

Russia

Horse breeding is under the control of the Ministry of Agriculture. Breeding of Army remounts is carried out in Military stud farms, while every horse bred in Soviet Russia is bred, so to

speak, with an eye on future war, and the industry can be said to be heavily subsidised.

South Australia

A club holding a licence for a totalisator can deduct 12¾ per cent. of the monies paid into the totalisator, out of which they are called upon to pay to the Government stamp duties varying from 1¼ per cent. where the gross takings do not exceed £2,000, to 5¼ per cent. where such takings do not exceed £5,000. This money is paid into the general revenue of the State, leaving the Club with an amount varying from 11½ per cent. to 7½ per cent. on the gross takings. None of this money is directly hypothecated in encouraging horse breeding, but the indirect effect is that the Clubs are able to reduce entrance fees to an absolute minimum and also offer more attractive stakes. This certainly has the effect of improving the standard of the breed of horses racing in the State.

Sweden

Eight hundred thousand kronen (*i.e.*, £42,000) is allocated for horse breeding. Of this 598,000 Kr. is directly used for breeding and the rest for the administrative cost of the Government stud, and of the two breeding depôts. The Government recoups itself out of the Totalisator.

United States of America

Official encouragement is given to the breeding of riding horses only. The existing annual appropriation for horse breeding is 120,000 dollars. With this, it is possible to maintain 700 stallions. That number is now on hand with civilian agents of the War Department throughout the country, and it is estimated that they will produce in the neighbourhood of 15,000 foals annually.

Licensing of Stallions under the Horse Breeding Act, 1918*

Ministry's Statistical Return

The number of stallions licensed under the Horse Breeding Act, 1918, in England and Wales, in each year since 1926, has been as follows:—

Service Season	1926	1927	1928	1929	1930	1931	1932
Shires	829	772	720	760	752	761	853
Other heavy horses	324	328	313	329	335	342	358
Light horses (including ponies) ..	455	437	381	347	343	329	266
	1,608	1,537	1,414	1,436	1,430	1,432	1,477

It will be seen that the total number licensed in 1932 was larger than in any year since 1927, and showed an increase of 45 as compared with 1931. The increase in 1932 was wholly in heavy stallions, which numbered 1,211 against 1,103 in the previous year. Applications for licences in respect of light stallions have declined each year since 1921, and the number of light stallions licensed in 1932 showed a reduction of 63, or nearly 20 per cent., as compared with 1931.

The increase in heavy stallions was mainly in Shires, which numbered 853, or 92 more than in 1931, but Percherons showed a relatively larger increase, *viz.*, from 48 to 57. The number of Suffolks and Clydesdales was practically unchanged at 136 and 130 respectively. None of the light breeds (including ponies) showed any increase, and decreases were relatively sharp in some cases. Thoroughbreds declined by 22 to 166, while ponies numbered only 51 against 85 in the previous year.

* *Journal of the Ministry of Agriculture and Fisheries*, November, 1932.

Licences were refused in respect of 45 stallions, an increase of seven as compared with 1931, but the number of appeals against refusals declined by 4. Only seven appeals were lodged, and three of these were successful. The breeds of the stallions rejected and the reasons for their rejection are given in the next table.

Number of Applications for Licences not Granted and Grounds of Refusal, 1932.

Breed	Number Refused	Percentage Refused	Disease: Cataract	Roaring	Whistling	Ringbone	Sidebone	Bone Spavin	Shivering	Stringhalt	Defective Genital Organs
Pedigree—											
Shire ..	28	3·5	1	7	12*	1	4	—	3	—	—
Suffolk ..	3	2·2	—	—	1	—	1	—	—	—	1
Clydesdale	3	2·6	—	1	1†	—	1	—	—	—	—
Percheron	2	3·6	—	—	1	—	1	—	—	—	—
Thoroughbred ..	3	1·8	—	—	1	—	—	1	—	1	—
Welsh Cob	1	6·7	—	—	—	—	—	1	—	—	—
Non-Pedigree—											
Heavy ..	5	3·8	1	—	1	1	1‡	—	1	—	—
Totals	45	3·0	2	8	17	2	8	2	4	1	1

* One also affected with Sidebone. † Also affected with Sidebone. ‡ Also affected with Ringbone.

Number of Applications for Licences and Number of Licences Granted and Refused Respectively in England and Wales 1932

Breed or Type	Pedigree (*i.e.*, Stallions entered or accepted for entry in the recognised Stud Book of their Breed): Applications	Licensed	Refused	Non-Pedigree (*i.e.*, Stallion not entered or accepted for entry in a recognised Stud Book): Applications	Licensed	Refused	Totals of each Breed and Type (Pedigree and non-Pedigree): Applications	Licensed	Refused
Heavy—									
Shire ..	809	781	28	74	72	2	883	853	30
Clydesdale ..	117	114	3	16	16	—	133	130	3
Suffolk ..	137	134	3	3	2	1	140	136	4
Percheron ..	56	54	2	3	3	—	59	57	2
Others ..	—	—	—	37	35	2	37	35	2
Light—									
Hackney ..	20	20	—	4	4	—	24	24	—
Thoroughbred ..	166	163	3	3	3	—	169	166	3
Arab ..	5	5	—	3	3	—	8	8	—
Cleveland Bay ..	3	3	—	—	—	—	3	3	—
Welsh Roadster	1	1	—	—	—	—	1	1	—
Hunter ..	2	2	—	1	1	—	3	3	—
Yorkshire Coach ..	1	1	—	—	—	—	1	1	—
Others ..	—	—	—	9	9	—	9	—	—
Pony and Cob—									
Welsh ..	7	7	—	—	—	—	7	7	—
Fell ..	1	1	—	—	—	—	1	1	—
Dales ..	8	8	—	3	3	—	11	11	—
Polo and Riding ..	8	8	—	—	—	—	8	8	—
Shetland ..	4	4	—	—	—	—	4	4	—
New Forest ..	1	1	—	—	—	—	1	1	—
Welsh Cob ..	15	14	1	5	5	—	20	19	1
Others ..	—	—	—	—	—	—	—	—	—
Totals ..	1,361	1,321	40	161	156	5	1,522	1,477	45

The Veterinary Record
November 26th, 1932.

THE VETERINARY PROFESSION AND THE MILK SUPPLY

THE entrance of the veterinary surgeon into the realm of prevention of human disease is so comparatively recent as still to be regarded by many as an intrusion. Records of achievement in supervision of milk production such as that published in this issue by the Chief Veterinary Officer of the West Riding of Yorkshire are accumulating to prove the value of the veterinary contribution.

The public health problems of the milk supply divide themselves into three categories: first, the maintenance of chemical quality, involving the analytical chemist; second, the insurance of a reasonable standard of bacterial cleanliness demanding the services of the bacteriologist and the general sanitarian; third, the provision of adequate safeguards against conveyance of disease, which again is subdivided into disease transmitted direct from the cow and that which may be acquired and conveyed mechanically in the milk. With the exception of this last sub-division all of these are amenable to effective control at the source, namely, on the farm, and it is just there that the veterinary surgeon, and he only, has intimate access. It is quite pertinent to suggest that the trained veterinary surgeon is, of all people, in the most favourable position to assume complete control of the fluid milk supply, especially in view of the accepted recognition of the functional suitability of many veterinary officers to supervise foodstuffs of diverse kinds in which they cannot have the vocational interest commanded by the product of the cow. However, we must recognise the prescriptive right of the doctor to declare what his patients shall drink even while we maintain our superior ability to determine how it shall be obtained.

The ordinary consumer of milk is entitled to expect, and in fact does so, that such a universal and delicate article of diet as milk is protected for him from all gross and avoidable dangers. That this is not so, that large quantities of dirty and of tuberculous milk are sold daily, is rapidly becoming more widely known. The elimination of the unsanitary producer is partly in the consumer's hands if he, or generally she, will exercise the ordinary choice of purchase, but the consumer has no means of recognising the most dangerous supply. Let us not overstate the risks. It is more hazardous to be a pedestrian than to drink milk. There is more likelihood of a man and his family, in this year of civilisation, suffering from the effects of unemployment than from milk-borne disease. It has frequently been stated that the health of the community would be better if twice as much milk, even infected milk, were used. But there remains a problem of undoubted magnitude to be handled.

Figures claiming to reflect the degree of tuberculous infection in the general milk supply must not be regarded as exact. There is no agreement between Local Authorities as to the manner in which statistics shall be presented, an omission which might well be remedied. A bulk sample may represent a tankard or a farm or many farms. The superior grades of milk are sampled more often than ordinary milk and one herd may be checked several times in a year while another is not examined once in ten years. Further, the biological test records simply the presence of infection, not its degree, so that the quoted percentage is to be interpreted merely as the proportion of occasions on which varying quantities of milk were found to be infected. Nor do the figures reflect the amount of dangerous milk consumed, inasmuch as a large quantity of it is commercially pasteurised after sampling and prior to retail issue.

The main policy of a large and influential body of opinion is to subject all fluid milk to a controlled process of pasteurisation. For many years heat-treatment has been practised as a commercial necessity not as a public health device, and a very large proportion of the milk supply is so handled daily. To compel supervised pasteurisation of all non-graded milk in England and Wales would cost not less than twopence per gallon, or, in other words, seven million pounds a year. We feel that the veterinary profession could do a great deal to make the milk supply safe with seven million pounds and a free hand. Indeed, we could make a good start on the problems in which we are more closely interested than even in that of the people's milk—the campaign of eradication of tubercle from British stock, of making the country fit for a cow to live in. And while so engaged we could adapt the process to the elimination of other diseases which are such a burden to the farmer.

For the present it behoves us to see that our members are trained and ready to perform any duty allocated to them in the field of public health and especially so to conduct our work as to make any reflection on our abilities, such as that to which Major Rabagliati calls attention, impossible.

Clinical Communications

CONTAGIOUS IRIDO-CYCLITIS IN SHEEP

("*BLIND.*" "*MOON BLINDNESS*")

F. T. HARVEY, F.R.C.V.S.
St. Columb

I am unable to find in available literature any reference to a peculiar disease affecting the eyes of sheep in this country. The condition seems definitely contagious, involves both eyes, and usually causes temporary total blindness. There is a milky condition of the aqueous humour which becomes very marked along the floor of the anterior chamber. There is no catarrh either of the cornea, or of the conjunctiva, but the latter may sometimes exhibit a brick-red appearance. The course is usually benign and in from five to seven days the cloudiness begins to clear up, the sight improves, and in about three weeks resolution seems fairly complete. The animals lose a certain amount of weight but the appetite is retained. When affected animals are disturbed they are inclined to rush off in different directions. They may get bogged, or stray. Six recently ran into a pond and were rescued with difficulty. Fatalities may thus be indirectly determined.

Recently a flock of eighty ewes was seen in which many were obviously affected and in various stages of the disease.

History.—A stray ewe was found with the flock and it was subsequently learned that she had come from a neighbouring farm, the ewes on which were affected with eye disease. She was no doubt affected, being described as queer in her movements, but she was not closely examined and was carelessly allowed to remain in her new quarters for some time. About a fortnight after her arrival on the farm one or two ewes were seen to be amiss and on examination were found to be blind. From now on cases were noted and the peak as regards numbers was reached about 14 days later. In this instance an affected ewe had strayed from one farm and carried the disease to an adjoining one. The stray ewe had been purchased with others from a dealer and these sheep had probably brought the infection on to the first farm. The disease certainly existed in one other flock in the West of Cornwall about the same time.

Several outbreaks of eye disease in sheep were seen by me in 1890 and then no more were encountered for 20 years. In 1910 a few cases were observed, since when the disease has been absent, or at least attention has not been called to it.

It would appear that there is one more specific disease to be added to the already long list of ovine affections in Britain.

TORSION OF THE MESENTERY IN A COW

G. S. MUIR, M.R.C.V.S.
Woburn, Beds.

The subject, a red shorthorn cow, five years old, in good condition, non-pregnant, was attacked with colicky pain about 3 a.m., according to the history given by the owner, and continued to show great uneasiness, kicking at her belly and lying down and getting up frequently until late in the evening, during which time she passed fæces only once to the knowledge of the owner. The following morning, as her condition had grown worse, professional assistance was requested, but she was dead before I reached the farm, death having occurred about 9 a.m.

Post-mortem examination revealed a complete torsion of the common mesentery, practically the entire small intestine being involved and showing the usual appearance of congestion and distension as found in cases of volvulus in the horse, with some patches of early peritonitis.

No cause could be found to which to ascribe the condition, which is apparently very rare in cattle.

* * * * *

THE REMOVAL OF A POLYPUS FROM THE VAGINA OF A COW

R. HUDSON, F.R.C.V.S.
Retford

Polypi in the vagina of the cow are occasionally met with and usually easy to remove, owing to a well-developed pedicle.

This one offered some difficulty and risk because of its large size—two pounds—and to the absence of a pedicle, the area of attachment to the vaginal wall being about five inches.

It was occasionally forced out of the vagina and required replacement by the owner. Part of the exposed surface was suppurating.

Direct removal with the écraseur was thought too risky because of the possibility of opening through into the abdominal cavity, also from the danger of hæmorrhage. Removal with the knife would have left the root and also provoked hæmorrhage difficult to arrest.

Removal by ligature offered the best solution to the difficulty, as it would close the opening into the abdominal cavity and cut off safely the blood supply. Ligation was carried out, a clove-hitch being tightly drawn round the growth and the ends left hanging out of the vagina.

Two days later another ligature was applied, the first one breaking when tightened, it having become quite rotten under the influence of the secretion. Three days later, the mass having now the appearance of dead tissue and being outside continuously, it was decided to remove it with the écraseur. This was carried out with

very little pain and the exhibition of only a few drops of blood.

After treatment consisted of vaginal flushings with weak zinci sulph. solution, half-an-ounce to the gallon.

* * * * *

TETANUS FOLLOWING SMITH'S OPERATION ON THE HOOF

R. HUDSON, F.R.C.V.S.
Retford

For some years I have treated chronic foot lameness of doubtful origin by needle-firing into the hoof at the coronet and grooving the hoof as for sidebone, with considerable success and without any ill result.

On July 28th I operated on a half-bred cart gelding and a few days later, stable accommodation being bad, he was turned out into a paddock. The weather was dry and hot and flies bothered the foot a good deal; an antiseptic oily dressing was therefore supplied to keep them off. On August 13th the horse was showing well-marked symptoms of tetanus and on the 15th was destroyed as the owner would not let him suffer.

Evidently it is an operation needing a dose of antitoxin.

A "MILD REVOLUTION" IN AGRICULTURE

Among the changes in agricultural practice revealed by a study of the agricultural returns for 1931 and which, according to the *Scottish Farmer*, are such as to constitute "a mild revolution," are a marked decrease in the arable acreage, with an inevitable diminution in man and horse labour, and an increase in early maturity cattle, with the gradual elimination of the aged bullock.

"The sheep statistics show the same indication in that the non-breeding sheep of one year and over are less by 90,000, whereas ewes kept for breeding are increased by 439,982 over the 1914 figure, while sheep of under one year are similarly increased by 445,250. Pigs, while showing an increase over 1914 are considerably less in number than in the years of 1923, 1924, 1927 and 1928. Poultry, one of the bright items in the changing picture, now total 7,353,800 as compared with 4,140,500 in 1913.

"The 'spacious days' are in the past, and there is not a single avenue to prosperity in agriculture but that of hard work and unrelenting attention to every department. The increase in dairying and poultry farming are indicative that the farmer has the enterprise when needed. The changes in the methods of feeding keep abreast of scientific knowledge. The momentum achieved by those in sheep farming looks as if it had overshot the mark, and its effects can only be minimised by more definite control of imports. The importance of the livestock industry in Scotland was never better illustrated than by these recent figures. A continued drop in the prices of livestock produce means ruin to agriculture in Scotland, and probably first of all to the large class of owner-occupiers who are now farming at least one-third of the arable area of the country."

Abstracts

[Efficiency in Dairy Cattle: The Problem of a Criterion. Darling, F. Fraser. *Imp. Bureau of Animal Health Quart. Bull.* (1932.) 2, 8, 169-173.]

The veterinarian's admiration for the milk recording movement as an agency for the elimination of the unremunerative animal is qualified by his fear of the consequences, in terms of depleted powers of disease resistance, of unrestrained encouragement of competition for phenomenally-high milk yields as an end in themselves. In this article the author details the results of a study which is of service from a collateral point of view, in that in its aim is an assessment of the true value of milk records. The average breeder is content with the bare milk record, but its interpretation is the really important thing and, in particular, its employment as a measure of efficiency. It is to this aspect of milk recording that the Bureau has devoted attention, the data being abstracted from breeders' milk record books, relating to pedigree dairy shorthorn cows.

It was deemed that the age at which a cow had produced a certain quantity of milk might provide a figure for comparison. The quantity of fifteen hundred gallons was decided upon—for reasons given—and the age in weeks at which a cow attains this amount as the figure for the comparison of efficiency. Consideration of the limitations of this method is not shirked, but by discussion, table and graph a convincing case is made out for its application as a yard stick of efficiency. "The method suggested is elastic and adaptable to various types of cattle and husbandry; also it would serve for genetical measurement and assessment, under controlled environmental conditions, of the characters of capacity for, and early maturity in, milk production."

W. B.

* * * * *

[On the Pathogenesis of Milk Fever. Seekles, L., Sjollema, B., and van der Kaay, F. G. *Acta Brevia Neerlandia.* 1932. Vol. 2, pp. 200-1.]

This short note describes the blood mineral history of a cow which regularly suffered from milk fever at parturition. The relevant figures are given and a discussion on pathogenesis is added. It was found in this case that the total blood calcium content did not behave in accordance with the symptoms, but that the calcium ion content did do so; it was therefore concluded that the latter is of particular significance in milk fever. Recovery quickly followed the administration of parathyroid extract and the immediate result was a two-fold increase in the calcium ion value. It appeared that the calcium ion value was concerned with muscular tonicity.

The purpose of this note is to direct attention to the calcium ion as distinct from total calcium.

. . . . .

[The Influence of Pregnancy and Parturition on the Composition of the Blood Serum and on the Tonus of the Sympathetic Nervous System. Seekles, L., Sjollema, B., and van der Kaay, F. C. *Ibid.* pp. 202-4.]

The authors studied the blood calcium, magnesium, potassium, phosphorus, acetone and sugar in three cows for a period before and after parturition. The individual figures are given in a table too big to reproduce here, but they may be summarised as follows. The calcium content of the blood falls four days *ante-partum* and only returns to normal about seven days *post-partum*, individual behaviour being very varied. The diffusible calcium did not fluctuate in the same way as the calcium ion. The inorganic phosphorus behaved like the total calcium. In one cow there was a slight rise in magnesium at parturition as was also the case with sugar, but a fall in the potassium value was observed at the same period. The behaviour of acetone was followed in one cow: it was increased markedly three days *ante-partum*, fell during the parturient period and rose again one week later.

The tonus of the sympathetic nervous system was studied by the method of Danielopolu (involving adrenalin injections) and it was found that the tone was somewhat raised towards the end of pregnancy but it fell again after parturition.

[These two papers are clearly in the nature of preliminary notes and should not be taken as conclusive.]

J. E.

* * * * *

[Vaccination of the Calf and of the Pig of the Dutch Breed against Tuberculosis with B C G. de Blieck, L. University of Utrecht. Extract from the Second International Congress of Comparative Pathology.]

From 1925 to 1928 the author vaccinated with B C G several series of calves of the Dutch breed and then exposed them to infection in various ways. Laboratory experience with B C G can, however, never entirely reproduce natural infection.

Calmette and Guérin in their early publication stated that favourable results had followed intravenous infection; the author tried this method and found little difference between the vaccinated animals and the controls. In 1928-1929 milk from a tuberculous udder was used as the infective agent and by regulating the number of bacilli per c.c. the degree of infection was controlled.

This experience was satisfactory, since the vaccinated calves were less tuberculous than the control animals. Encouraged by this success it was resolved to continue the experiment on piglets, B C G having been but rarely applied to the porcine species.

A sow was bought and, having been tested twice with tuberculin, negatively, was bred from. The mother and the piglets were tested before proceeding with the experiments. Bovine and avian tuberculin were used in the tests so as to exclude avian infection. Three experiments were made on young pigs from the same mother, all giving a negative reaction to tuberculin. Some were vaccinated with B C G and some used as controls.

Series 1.—Five pigs, twelve days old, were vaccinated with 5 mgr. B C G in suspension subcutaneously at the base of the ear. Tuberculous milk was fed to them and to the four controls. In six weeks infection was observed in the vaccinated and in the controls. Contamination was continued for two months, and a month after, all were killed. The tuberculous changes as well as the swollen glands without tubercles were examined for tubercle bacilli and in this, as in the other experiments, only tubercle bacilli of the bovine type were observed. The *post-mortem* on the immunised subjects revealed tuberculosis of the submaxillary, retropharyngeal, mesenteric and hepatic lymphatic glands. One pig had slight lesions and two others lesions generalised in the lung and spleen.

Two of the controls showed generalisation in the lung and in all four the lymphatic glands were more extensively affected and were softer. There was no trace of change at the seat of inoculation.

Series 2.—Five pigs, one month old, were inoculated with 25 mgm. B C G. Two months afterwards they were fed with tuberculous milk containing per c.c. one-quarter of the number of tubercle bacilli as that in the first experiment. After two months of infection the animals were killed, as were five control animals similarly fed with bacilli. On *post-mortem* the vaccinated subjects were as in the first series. In the controls the process was more intense and three showed commencing generalisation.

Series 3.—Four pigs, two-and-a-half months old, were vaccinated with 50 mg. B C G. There were four controls, one of which died of rouget before the end of the experiment. This time infection was by the addition of a virulent culture of *B. tuberculosis* to the milk, the number of bacilli per c.c. being as in the other series, but fed for one week only. Three months after the animals were slaughtered. The local process had disappeared in all the subjects. In the controls tubercles visible to the naked eye were found in the submaxillary lymphatic glands, and the bronchial and mesenteric glands were much swollen.

Guinea-pigs inoculated from all these glands proved that they all contained tubercle bacilli.

In the vaccinated animals the process was less acute, the lymphatic glands being less swollen and circumscribed tubercles more numerous. The impression given was that here the process was milder and the tendency towards cure more manifest.

Experiments are to follow in which vaccination will be by the mouth, as in children. The number of these experiments is too few to enable one to draw definite conclusions. The idea is entertained that the dose of B C G might be increased, together with the introduction of new modifications of the degree of infection. Spontaneous infection is also to be tried.

For the moment the results do not encourage the hope of an efficacious immunity of calves and pigs of the Dutch breed against tuberculosis.

W. R. D.

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[The Blood Picture in Potassium nitrate Poisoning. A Contribution to the Knowledge of Methæmoglobin Formation in the Animal Body. Seekles, L., and Sjollema, B. *Acta Brevia Neerlandia.* 1932. Vol. 2. No. 4.]

The authors studied potassium nitrate poisoning in three adult cattle by dosing them with 100 to 200 grams of KNO_3 in water *per os*. The symptoms were the same as of nitrate poisoning and it was found that about one-tenth of the nitrate is reduced to nitrite in the rumen. Nitrate is eliminated by the kidneys over a period of some 12 hours after dosing. During this period it is assumed that the nitrate is taken up by the organ and is only slowly passed to the kidneys for removal. Nitrate enters the blood and combines there with about 20 per cent. of the hæmoglobin to form methæmoglobin, and when this occurs circulatory disturbance follows; the heart frequency is doubled, there is a strong carotid pulse and respiration is laboured but not quickened. The calcium, inorganic phosphorus and magnesium content of the blood is lowered 20 per cent. The blood mechanism of recovery from nitrite poisoning is not described here.

J. E.

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[Research on the Morphology of Mammalian Blood. Knoll, Prof. W. *Schweiz. Archiv. f. Tierhlk.* 1932. Vol. 74, Nos 6 and 7.]

As explained in a footnote, this is only the summary of a larger work, which is to be published in the *Zeitschrift für mikroanatomische Forschung.* The bibliography only appears with the full work.

Judging from this summary, the entire work is probably of monumental dimensions: it covers the examination of the blood of many of the mammalian orders, *e.g.*, Monotremata, Marsupialia, Insectivora, Dermoptera, Xenarthra, Rodentia, Carnivora, Cetacea, Subungulata, Artiodactyla, Mesaxonia, and Primates. The work is presented under the headings A. Red blood cells (1) general morphology, (2) special morphology; B. White blood cells, and the oxydase reaction. The paper is not abstractable here in the usual way, but a fair amount of information can be got from this summary, which includes some tables dealing with blood counts, etc. The hæmatologist should consult the original complete work.

J. E.

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[The Tricophytons: Faviform Culture on Natural Media and on Media of the Polysaccharide Base of Langeron and Milochevitch. Baudet, E. A. R. F.. *Annals of Parasitology.* Vol. 9. No. 6.]

In their work on the morphology of the dermatophytes on natural media and on media of polysaccharide base, Langeron and Milochevitch mention that the megaspores have shown on natural media the classic morphology described by Sabourand for the Tricophytes and that the sufferance forms have disappeared on these media. They obtained best results with the fluffy megaspores, while the results with the faviform megaspores were mediocre. The strains employed came from the collection of Sabourand and they (L. and M.) thought that the age of the strains was the cause of their ill success in cultivating them on natural media. The author, having received specimens from four cases of ringworm of the ox, was able to isolate from each the *Trichophyton album* by cultivation in a medium containing 4 per cent. glucose.

A young culture of *Trichophyton album* was sown on grains of barley, wheat and oats and on horse dung. Much the most satisfactory results from the sowings were afforded by the barley. The microscopic aspect of the cultures on grains of barley revealed compound clusters. In cultures three months old many grains were covered with a thick layer of hyphæ and free spores. Corkscrew forms were not demonstrated, though a mycelium, more or less twisted, was observed.

Cultures on other natural media (wheat, oats and horse dung) gave results that were unsatisfactory as fructification was wanting in some degree. Culture on yellow dextrine, on white dextrine and on soluble starch of strains of faviform Trichophyton of the ox develop a smooth culture very adherent to the medium. Microscopic examination of a particle of the culture shows a mycelium with few organs of fructification. Barley grain, then, is the best medium to obtain fructifications in the case of faviform Trichophyton of the ox.

W. R. D.

Reports

KENYA COLONY AND PROTECTORATE

DEPARTMENT OF AGRICULTURE: ANNUAL REPORT, 1931

In pursuance of a desire long felt and a recommendation of the Agricultural Commission, the Department of Agriculture of the Kenya Colony and Protectorate is now organised under two main Divisions: (1) Plant Industry; (2) Animal Industry, and the organisation was completed towards the end of the year by the appointment of Major H. H. Brassey Edwards to the post of Deputy Director (Animal Industry), combining with it the duties of Chief Veterinary Officer. Already there is evidence of the soundness of this organisation, though it is inevitable that there should remain a mass of work on subjects of great variety and complexity and ever-recurring demands for special services, which necessitate the personal attention of the Director and his Assistants. The Annual Report of the newly-appointed Deputy Director indicates the value and importance of the work performed by him and his staff.

The Agricultural Census for 1932 shows that about a quarter of a million cattle, two thousand horses, two hundred thousand sheep, fifteen thousand pigs and sixty-two thousand poultry are owned by Europeans; and the most recent census relating to livestock in native areas, compiled in 1930, estimates the cattle owned by natives to be in the neighbourhood of five million head and native sheep and goats to number approximately seven million head. The enormous task of controlling disease in such a vast number of animals so widely distributed will be appreciated. " The situation with regard to the prevalence of stock diseases shows marked improvement, and the control of its general incidence, particularly rinderpest, may be said to be due to additional veterinary activities amongst the native stock-owners in the reserves, and the gradual reduction of native squatter stock."

With regard to the prevention and control of disease by inoculation, the Deputy Director states: " The policy in regard to field veterinary problems is changing in the direction of refraining from the use of virulent material and the consequent creation of active foci of disease, and it is hoped with the advance of veterinary research to resort to measures of complete eradication as the ultimate object." The issues of rinderpest vaccine, which amounted to 28,020 courses, as compared with 11,600 courses in 1930, reflect the increased substitution of vaccination for double inoculation. The vaccine was found to retain its potency in cold storage for at least six months—an observation of great practical importance. No outbreaks of natural infection of rinderpest occurred in vaccinated herds.

There is ample evidence that East Coast fever can be eradicated from infected farms in a " dirty area " by means of dipping and fencing, but attempts were made to introduce a serum method of immunisation. There was a decrease in the incidence of bovine pleuro-pneumonia in the settled areas, and the demand for vaccine also decreased. Unfortunately this disease is one of the major diseases in native reserves. Imported cattle are submitted for immunisation against redwater and anaplasmosis, and as in Southern Rhodesia, it is found that on farms where dipping has been regularly carried out for some time, the incidence of these infections is decreased to such an extent that it is unsafe to move cattle born and reared thereon to tick-infested areas. Following the example of Rhodesia, therefore, the inoculation of young cattle on clean farms is recommended.

It is impossible to review in detail all the activities of the Veterinary Department of this Colony, but reference must be made to the report of the Chief Veterinary Research Officer, Mr. J. Walker, which appears in Appendix VIII. This outlines the usual routine and clerical work involved and records the enormous quantity of laboratory products issued. Indeed, it would appear that the Laboratory, originally intended for research, is in danger of being converted into a huge vaccine factory—a fate which has befallen other so-called "research" stations. Nevertheless, investigations have been carried out into the problems presented by East Coast fever, especially in connection with prophylactic and curative inoculation, and the determination of the duration of immunity in recovered animals.

Experiments were also carried out with a view to improving the formolised rinderpest vaccine, and it is interesting to note that the addition of formalin in a concentration of one per cent. was sufficient to ensure a sterile product within a reasonable period after preparation. Other diseases such as sweating sickness, Nairobi sheep disease, Rift Valley fever, and contagious pleuro-pneumonia of goats received attention, and further observations were made as to the efficacy of Whitworth's formolised spleen virus-vaccine for the protection of equines against horse-sickness.

In a review of this length it is impossible to deal adequately with these valuable and interesting reports, but perhaps enough has been said to emphasise once more the enormous importance of an efficient and enthusiastic veterinary staff in a Colony the progress and

prosperity of which so largely depends upon the development of its pastoral industries.

Ll. E. W. B.

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WORK OF MALAYAN VETERINARY DEPARTMENT

As in former years, states the annual report on the Federated Malay States Veterinary Department, departmental activities in 1931 were mainly directed to the application of measures for excluding animal diseases from outside sources, controlling such outbreaks as arose within the Federated States, and, in general, maintaining animal health and welfare at as high a standard as possible. Quarantine stations were maintained in all seaports, and on inter-state boundaries where necessary, and all railed consignments from Siam passed through the main northern quarantine station at Padang Besar, Perlis State. All animals entering the Federated Malay States from sources outside Malaya are liable to detention under observation on arrival. This measure is enforced as a matter of routine in the case of bovines, though special provision is made for those intended for immediate conversion into meat, and exemption is granted to railed animals that have already undergone quarantine at Padang Besar.

RAPID GROWTH OF THE BRITISH SILVER FOX INDUSTRY

Little more than a dozen years have elapsed since the silver fox breeding industry was introduced to this country. Then there were some ten breeders in Great Britain; to-day there are over 150. The strongholds are Scotland and the county of Devon, although there are silver fox farms—or ranches, as the breeders prefer to call them—in nearly every county. The largest ranch is in Nithsdale, Dumfriesshire, where there are at present 500 foxes. Here it is proposed to fence in part of a mountain side to provide an exercise ground for the foxes.

The ultimate end of the silver fox is the adornmen of women, and, by pedigree breeding, the greatest care is being taken to preserve the strain and to produce animals which will bear pelts of the finest quality. Registration certificates describing the pedigree, tattoo marks, and colour of the foxes are issued by the Silver Fox Breeders' Association of Great Britain and Northern Ireland, and each year there is an inspection of the young stock. Only those approved by the association's inspectors are registered.

The seventh annual show of the association, which was held recently at Islington, was confined to breeding animals. In judging them, points are given for conformity and for the quality, length, and marking of the pelts. There were 256 entries, an increase of 50 compared with last year's show. The exhibits were of a high standard of quality, and were stated to be comparable with the best Canadian silver foxes.

Reviews

ANIMALS IN CHEMICAL WARFARE*

The chief purpose of this book, as expressed in the author's preface, is to summarise existing knowledge on a new and highly specialised branch of veterinary science, so that in the event of chemical warfare in the future, veterinarians will the better be able to deal with situations arising therefrom. A footnote to the introduction contains the significant remark that, in the course of the book, the Geneva discussions on the proposed abolition of chemical warfare are not taken into consideration. The author is under no misapprehension as to the value of gas in preventing or ending wars of attrition, and he acknowledges the great technical skill of German chemists whose researches have supplied such a powerful sinew of war.

The special pathology and therapeutics of injury to animals from such gases as chloropicrin, mustard gas, Clark I and II, and phosgene, etc., would appear to be adequately dealt with, and the text is liberally illustrated with photographs of the lesions. The coloured plates are good and show lesions in horses and dogs caused by mustard gas and Clark I.

So convinced is the author of the future utility of chemical warfare that veterinarians are urged to study this subject, with the idea of devising suitable methods of mass prevention. After all, methods found useful in the late war are bound to become a little antiquated. It will, however, be a matter of opinion whether or not it is desirable to add the acquisition of such knowledge to the task of the already fully occupied final year student, as the author suggests should be done.

The text is well printed in Latin script, the paper is good and the subject matter may be commended to army veterinarians, who may be able to check up from their own experience. To others it will probably only supply some bright ideas for the extermination of vermin.

* Animals in Chemical Warfare. (Die Tiere im Chemischen Kriege). By Professor Dr. Vet. Med. C. F. Richters. Richard Schoetz, Berlin. pp. 141, with 40 illustrations and four coloured plates. Price, bound, R.M. 11.40.

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INSECT VECTORS*

The study of medical and veterinary entomology must embrace a certain amount of classification and morphology and, if the subject is to be thoroughly understood, a fairly

* Diagrams and Sketches of Some Insect Vectors and other Arthropoda Injurious to Man or Beast. Garret & Campbell, Ltd., Chancery Lane, W.C.2. Price 3s.

high degree of skill in drawing is required of the student. To compensate for the lack of this in many cases and to assist in the saving of time in all, Lieut.-Colonel M. St. L. Simon has prepared a set of sketches of the important arthropods usually studied in these courses. The booklet consists of nine plates, the first being a table of classifications, the remainder classified illustrations of the various types. The drawings are not made to any particular scale and are (except for the generic name) unlabelled so that the student can only use them as a basis for his work—not as a substitute. The types selected are those in use in the Edinburgh D.T.M. and D.T.V.M. courses and the charts have been prepared with the active supervision of Dr. A. E. Cameron, the lecturer in Entomology at that school. The charts, used intelligently, should be invaluable to all students of the subject and their low price removes any reason for not profiting by Colonel Simon's capable draughtmanship.

ANIMAL DISEASES AND POLITICS

"Veterinary history has pointed out that Napoleon would have made a successful retreat from Moscow had not animal disease destroyed his only means of transporting the retreating troops," writes "Gleaner" in the *North American Veterinarian*. "In the same country animal diseases now threaten to depose Stalin, dictator of all the Russians. His programme of producing animals on a large scale without pre-arranging for a scientific veterinary service has led to such appalling catastrophes that the whole country is agog over the attempt of the politicians to blame those who were selected to carry out the fateful experiment. In this country animal diseases are beginning to, and will in time, destroy the entire fabric of the county agent system of handling them. They always have and always will destroy the untrained meddler, the half-baked scientist or visionary politician who builds upon fancy instead of upon fact.

"Certain diseases of animals, previously restricted to limited areas of the world, are gradually invading every part of inhabited territory. The growing interchanges of commerce make the trend inevitable. Contagions are spreading into countries where they were once unknown. Undulant fever of man and abortion disease of animals are becoming world-wide; hog cholera, born in the United States, as our European colleagues insist, now exists in practically all civilised countries; Johne's disease is no longer isolated in a few small countries of the Old World, and its prevalence is increasing to an alarming extent. Streptococcic mastitis is threatening the dairy industry everywhere on two continents; and infectious anæmia of horses, piroplasmoses and anaplasmoses of cattle, once restricted to narrow geographical areas, are being recognised in unexpected places. All of these and metazoan parasitisms are spreading with geometric progression from their original centres.

"While the veterinary services of the different civilised countries have become the master of many diseases, others are looming and continuously appearing as a warning to mankind that meddling with the operations of veterinary science is a short-sighted policy that will destroy its advocates."

N.V.M.A. Divisional Report

YORKSHIRE DIVISION*

OFFICERS ELECTED AT LEEDS

A General Meeting of this Division was held at the Hotel Metropole, Leeds, on Friday, October 28th, 1932. The President, Lieut.-Colonel J. A. Dixon, occupied the chair and there were present: Messrs. F. C. Scott. W. T. McGregor, H. G. Bowes, J. Clarkson, J. W. Procter, W. A. Campbell, A. H. Watson, D. S. Rabagliati, W. Halstead. W. R. McKinna, H. M. Holland, F. Hallilay, J. M. McKellar, W. A. Ireland, J. G. Ross, E. Ackroyd, E. F. Hardwick, S. B. Vine, R. S. Smyth, A. H. Gentle and the Hon. Secretary.

The business of the meeting was divided between the transaction of annual business and the presentation of clinical material by members.

The minutes of the previous meeting were approved and the receipt of notices of inability to attend was intimated from Messrs. H. Pollard, G. C. Barber and W. Crawford.

The consideration of correspondence received from the General Secretary, N.V.M.A., was remitted to the Council.

The members present supported the suggestion that a paper on Poultry Diseases be read at a future meeting.

Election of Officers

The election of officers for the ensuing year resulted as follows:—

President.—Lieut.-Colonel J. A. Dixon.

Vice-Presidents.—Mr. J. Clarkson, Mr. S. B. Vine and Mr. J. W. Procter.

Hon. Treasurer.—Mr. F. C. Scott.

Hon. Secretary.—Mr. S. Sharp.

Hon. Auditors.—Messrs. G. C. Barber and W. Crawford.

Council.—Lieut.-Colonel H. G. Bowes and Messrs. W. A. Campbell, W. Halstead, H. M. Holland, A. McCormick, senr., W. T. McGregor, W. R. McKinna and A. H. Watson.

Representatives to Council, N.V.M.A.—Messrs. D. S. Rabagliati, J. W. Procter and Lieut.-Colonel J. A. Dixon.

Messrs. H. M. Holland, A. H. Watson and W. R. McKinna presented descriptions of interesting clinical cases, which gave rise to a lively discussion. A vote of thanks to these gentlemen for their contributions was accorded. A vote of thanks to the President for his conduct in the chair terminated the meeting, at the close of which members were entertained to tea by the Leeds members of the Division.

S. Sharp, *Hon. Secretary.*

* Received for publication, November 15th.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, YORKSHIRE BRANCH, VETERINARY GROUP

A meeting of the above Group was held on Friday, September 30th, 1932, at 3.30 p.m. in the Committee Room of the Leeds Public Health Department.

The following members were present: Messrs. D. D. Canning, W. Halstead, H. M. Holland, W. A. Ireland, E. F. McCleery, W. T. MacGregor, J. M. McKellar, W. R. McKinna, J. G. Ross, S. Sharp, R. S. Smyth, S. B. Vine, Major D. S. Rabagliati and Colonel J. A. Dixon.

The first business of the meeting was the election of a Chairman and a Secretary for the ensuing year. Major D. S. Rabagliati was unanimously re-elected Chairman, and Mr. W. T. MacGregor, Secretary.

A letter was read from Dr. Mair, Secretary of the Yorkshire Branch of the Society of Medical Officers of Health. In his letter Dr. Mair stated that it had been decided by his Council to make a presentation to the late Secretary of the Branch, Dr. Pearce, who had resigned on being appointed President of the Society of Medical Officers of Health. The members present were unanimous in desiring to show their appreciation of the valuable services rendered by Dr. Pearce to the Society and it was suggested by the Chairman that the Group might contribute £4 5s. to the presentation. This was agreed upon.

The Chairman then called upon Colonel Dixon to open a discussion on Milk Pasteurisation. After Colonel Dixon had introduced the subject in a comprehensive but concise manner, a lively discussion ensued in which most members voiced their opinions.

The general consensus of opinion was that while the Group recognised certain economic advantages from pasteurisation, it had many disadvantages of which sight should not be lost. It was felt, however, that should pasteurisation ever become general in any special area, the veterinary profession should urge that this should not lead to any slackening off in measures to be taken for the production of clean milk and one as far as possible free from tuberculosis. It was also urged that pasteurisation should only be permitted on premises specially licensed for this purpose and that they should be subject to much greater control than is often the case to-day.

After the Chairman had summed up, votes of thanks were passed to Colonel Dixon for his introductory remarks and to the Medical Officer of Health for Leeds, for so kindly placing a room at the disposal of the Group.

The meeting then terminated.

W. T. MacGregor, *Hon. Secretary.*

* Received for publication November 7th.

R.A.V.C. OLD COMRADES' ASSOCIATION

SUCCESSFUL RE-UNION DINNER

Participation in the 12th Annual Re-union Dinner of the R.A.V.C. Old Comrades' Association, at Anderton's Hotel, Fleet Street, E.C., on November 4th, furnished convincing proof that this excellent organisation happily preserves a remarkable vitality in the face of economic circumstances which adversely affect so many of its members to-day. Loyalty to the Association "come what may" was indeed much in evidence throughout the evening, and a hearty spirit of optimism prevailed.

The large company accorded a warm welcome to Major-General Sir John Moore, who made his initial appearance as President in his capacity as the newly-appointed Colonel Commandant, R.A.V.C., while the presence of Lieut.-Colonel P. J. Simpson, President of the N.V.M.A., was also a pleasing feature.

Following the honouring of the loyal toast, Major-General Sir Layton J. Blenkinsop submitted "The Association," saying that he had been called upon without notice to do so in consequence of the regretted absence, through indisposition, of Major-General Anthony. The toast was a very easy one to propose, however, because there was no difficulty in commending to them an Association which he considered to be one of the best of all the Old Comrades' Associations in the Service: as everything connected with the R.A.V.C. always had been when it had been allowed to pursue its own course. (Hear, hear.) The Association was a good one because they themselves made it so, but they all knew that it required paying members, for times were hard just now—when they improved then they would be able to go ahead.

They had lost their old Secretary—Mr. Corr—and they were very sorry that he had gone: he had done a great deal for the Association. (Hear, hear.) However, they were fortunate in finding, in Captain Warburton, a very good man to fill his place, and he was sure that their new Secretary would not allow retrogression in any respect if he could help it. (Cheers.)

They were also privileged to have, in General Moore—who had taken over from him the post of Colonel Commandant of the Corps—a new President who, he was quite certain, would see that the Association went along well. (Cheers.)

There was little more for him to say except to express the earnest hope that those who were there that evening were weathering the present hard times, and that all would sail into smoother waters in the near future. (Cheers.)

Major-General Sir John Moore, responding to the enthusiastically-honoured toast, said that, on behalf of the Association, he desired to thank

Sir Layton for the very kind remarks that he had made about both the Association and its President.

Sir Layton had reminded him that he had taken over the appointment of Colonel Commandant, which carried with it the chair of that Association. He could assure them that it would be his earnest endeavour and his greatest pleasure to further the interests not only of the R.A.V.C. but of that Association. (Cheers.) The Corps was very dear to his heart, and so was that Association, and if he could help anyone who was a member of it towards the betterment of his lot in life, they could depend on it they could make use of him. (Hear, hear.)

With Sir Layton, he felt Mr. Corr's loss very much, but they had a very able successor to him in Captain Warburton, who was, and always had been, a tower of strength to the Association. They wished him long life and good health, to carry their flag well. (Cheers.)

Captain Warburton (Hon. Secretary of the Association) made happily-phrased acknowledgment of the tribute to his efforts paid by the President and General Blenkinsop.

The enjoyment of the assembly was much enhanced by the programme of light music excellently rendered by Mr. Lois Osborne's String Trio (late R.A.V.C.), and its hilarity by the joyous menu-card contribution—An Indian Chieftainized Centaur—of that gifted cartoonist, Sergeant O'Reilly, now, alas, of Toronto.

ANNUAL GENERAL MEETING

At the Annual General Meeting, held immediately prior to the Dinner, with Major-General Sir John Moore in the chair, the Hon. Treasurer gave an explanation of the accounts, copies of which had been distributed to all members. After a general discussion, in which it was pointed out to the meeting that a Sub-Committee had been formed to deal with the question of subscriptions and cost of the dinner, the accounts were passed.

Agreement was given to a proposition that the Statement of Progress should be abolished. A general discussion took place on Major Stalker's proposition that an Annual Re-Union Meeting be held at the Depôt, R.A.V.C., Woolwich on Cup Final night. It was left to the Sub-Committee to deal with the matter and it was agreed that an announcement be made at the Dinner that the meeting would be held.

At the election of the Committee of Management for the ensuing year, Lieut.-Colonel P. J. Simpson was elected as a Vice-President to fill a vacancy caused by the death of Major F. B. Ditmas, T.D. Major S. L. Slocock was elected on the Committee of Management to fill the place caused by the death of Lieut.-Colonel L. Danels, and Lieut.-Colonel H. E. Gibbs, in place of Colonel Mosley, who is shortly leaving for India. The remainder of Committee of Management were re-elected *en bloc*.

Captain Warburton was, with acclamation, re-elected Hon. Secretary and Treasurer.

The Hon. Secretary and Treasurer reported that he attended the Annual General Meeting of the National Association for the Employment of ex-Regular Sailors, Soldiers and Airmen at the United Services Institution, Whitehall, on Wednesday, July 27th, 1932. In the course of the meeting it was pointed out that employment had been found for 17 ex-R.A.V.C. Regulars in different parts of the country and that the R.A.V.C. Old Comrades' Association had been the means of finding employment for five others.

Grants had been recommended from funds of the R.A.V.C. Benevolent Fund for seven members of the Association and in each case relief had been granted by the Committee of the R.A.V.C. Benevolent Fund.

The meeting concluded by recording its grateful thanks to Captain Warburton for the able manner in which he had carried out the duties of Hon. Secretary and Treasurer, and its indebtedness to Sir John Moore for presiding.

In Parliament

The following questions and answers were recorded in the House of Commons recently (*Hansard* Reports):—

Certified Milk (Regulations)

Captain McEwen asked the Minister of Health whether his attention has been drawn to the difficulty which the producers of certified milk are faced with by reason of the Ministry's regulation laying down that the date of production must be stated on all bottles, so that the afternoon's milk is unsaleable until the following day; and, seeing that the evading of the regulation by post-dating is increasing, whether he will take steps to stop this by amending the regulation or otherwise?

Mr. Shakespeare: My right hon. Friend is not aware that the practice of post-dating bottles of certified milk is increasing, and if any case in which this is being done is brought to his notice, he will take steps to secure compliance with the provisions of the relative Order. My right hon. Friend has received some representations suggesting that the requirement in question should be altered and these will be considered in conjunction with other proposals when an opportunity arises for the amendment of the Order.

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Horse Breeding

Mr. Anstruther Gray asked the Secretary of State for the Home Department if he is aware that provision was made in the Racecourse Betting Act that some part of the profits accruing from betting on horse races should be used to benefit British horse breeding and that no such profits have yet accrued; and if, in view of the recent reduction of the horse-breeding grants under the economy measures of the Government he will ask the Royal Commission on Lotteries and Betting to issue an interim report dealing with the question of ensuring profits from racecourse betting for the benefit of horse breeding?

The Secretary of State for the Home Department (Sir John Gilmour): I am aware of the matters referred to in the first part of the question: as stated in reply to previous questions, it must be left to the Royal Commission on Lotteries and Betting to decide their own procedure in the matter of the submission of an interim report on any aspect of their inquiry.

. . . . .

Coal Industry (Horses and Ponies)

Sir R. Gower asked the Secretary for Mines if he will publish as a pamphlet for general circulation among the mining people of the South Wales coalfield, the suggestions made in the recent annual reports of the two divisional inspectors in that area; and whether he will include in such a pamphlet the 10 points dealing with the proper care and general welfare of the horses used underground, enumerated in the 1929 report of the Cardiff divisional inspector?

Mr. E. Brown: These suggestions have already recently been published in the reports mentioned, expressly for the guidance of mining people in South Wales, and I doubt whether the results of a second official publication would justify the expense during this period of strict economy.

Sir R. Gower asked the Secretary for Mines the number of horses and ponies employed in mines over the ages of 14, 15 ,18, and 20 years; and whether he will take steps to bring out of the mines the aged horses that are so described in recent reports of some divisional inspectors?

Mr. Brown: I regret that the figures asked for are not available. The present regulations prohibit the employment of horses, whatever their age may be, immediately they become unfit for their work, and I repeat the statement made in the last Annual Report of the Secretary for Mines, and based on the results of a special investigation of the condition of some 18,000 horses, that, except in a very few cases, special care and consideration are shown in respect of the older horses. In those few exceptional cases prompt remedial action has already been taken by His Majesty's inspectors, and the matter will continue to receive their close attention.

Sir R. Gower asked the Secretary for Mines whether the examinations for the obtaining of the first and second-class mine managers' certificates include a test of knowledge in regard to the use of horses and ponies in the special conditions in which they are employed below ground; whether this test includes some measure of the candidates' veterinary knowledge, as well as that relating to the proper care and general welfare of horses and ponies; and whether, if not, he will take steps to include such tests in all future examinations for these certificates?

Mr. Brown: The answer to the first part of the question is in the negative. As regards the last part, I see no need for requiring prospective mine managers to pass tests in veterinary science. The duty of the manager is one of general supervision of competent horsekeepers and others immediately responsible for the care and treatment of the horses; and it is the common practice of mine owners to employ consulting veterinary surgeons to guide them and the manager in matters requiring expert veterinary knowledge.

Sir R. Gower asked the Secretary for Mines the number of underground stables, and the number of mines, in the Swansea, Cardiff, Northern, Yorkshire, Midland and Southern and North Midland Divisions, at which bedding is provided regularly for the horses and ponies; and the kinds of bedding used in these divisions?

Mr. Brown: No statistical information is available, but it is the general practice both in the districts named and throughout the country to use sawdust, moss litter, or some similar material in underground stables.

Sir R. Gower asked the Secretary for Mines the number of underground stables, and the number of mines at which they are electrically lighted; whether there are serious technical difficulties in the way of electrically lighting all underground stables, if only to ensure the proper shoeing of the animals; and the number of mines and underground stables where automatic drinking bowls have been installed in the stables or in the working districts to ensure a supply of fresh drinking water always for the animals.

Mr. Brown: The Coal Mines Act, 1911, requires that all horses shall be housed, when not at work, in properly constructed stables and shall be provided daily, both in stables and while at work, with a sufficient supply of pure water. The administration of those requirements receives the daily attention of His Majesty's inspectors, and I am satisfied that in general they are very well carried out; but I cannot say in how many cases the stables are lighted electrically or the drinking bowls are automatic. In those mines in which electric power is available in the vicinity of the stables there should not normally be much difficulty in the way of lighting the stables electrically; and it is certainly desirable that electric lighting should be provided wherever it is safe and practicable to do so.

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Farriery (Instruction Classes, Local Education Authorities)

Sir D. Gower asked the President of the Board of Education the number of local education authorities, if any, providing instruction in farriery, including the anatomy and physiology of the horse's foot, proper methods of shoeing horses, foot diseases and their treatment, and cognate matters, including first aid, in evening technical or other classes, with special reference to colliery horses and ponies; and whether he will take steps to encourage the formation of such classes by local education authorities in the various coalfields?

Mr. Ramsbotham: In the session 1930-31 classes in farriery were provided by the local education authorities for London, Halifax, Manchester, Sheffield and the West Riding of Yorkshire. The class provided by the last-named authority is held at the Castleford, Normanton and District Mining and Technical Institute, where a class in the anatomy of the horse's foot is also provided, and it can be assumed that the instruction here given has special reference to colliery horses and ponies. The board's information does not enable them to say whether this aspect of the subject is specially studied in any of the other classes. The board would always be ready to consider favourably any proposals for the esablishment of farriery or similar classes in mining areas where horses and ponies are largely used.

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Foot-and-Mouth Disease

Mr. William Nicholson asked the Minister of Agriculture whether in any of the cases of the recent outbreaks of foot-and-mouth disease the source of the infection has been traced; and, if so, to what cause?

The Minister of Agriculture (Major Elliot): I regret that inquiries into the recent outbreaks of foot-and-mouth disease in Lincolnshire and Leicestershire have failed to establish the source of infection in either case.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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DIARY OF EVENTS

Nov. 28th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Nov. 30th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone.

Dec. 6th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries.

Dec. 7th.—Meeting of the Scottish Society of Veterinary Inspectors, at Glasgow.

Dec. 10th.—Meeting of the North of England Division, N.V.M.A., at Newcastle-on-Tyne.

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LIGHT HORSE BREEDING: WITHDRAWAL OF GOVERNMENT GRANT

The Government has decided to withdraw entirely the light horse breeding grant for King's Premium stallions, even the reduced grant of £8,000 not being available next year.

For a number of years past the Treasury have granted premiums totalling £32,000, which have been allotted at the spring show of the National Light Horse Breeding Society. Following last year's cuts in national expenditure it was intimated that no grants would be made for 1932, but after a deputation had visited Whitehall grants amounting to £8,000 were promised and made. The Society recently sought to secure the renewal of this amount, but has been unsuccessful. It will, however, endeavour to make good the deficiency from its own limited reserves, and a show of thoroughbred stallions and light horses will therefore be held at the Royal Agricultural Hall, Islington, from February 28th to March 2nd.

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R.C.V.S. OBITUARY

Borthwick, James; Gateside, Kirklinton, Edinburgh. Graduated New Edinburgh, April 23rd, 1884; died November 14th, 1932; aged 68 years.

Godbold, Herbert, 35, Stowupland Street, Stowmarket ("Existing Practitioner"). Died November 17th, 1932; aged 81 years.

Low, Peter; Stanley, near Perth, Scotland. Graduated Edinburgh, April 18th, 1873. Died November 18th, 1932; aged 85 years.

Sixty Years in Veterinary Surgery

In reference to the death of Mr. Herbert Godbold (recorded above) the *East Anglican Daily Mail* says: "By the death of Mr. Herbert Godbold the town of Stowmarket loses one of its oldest inhabitants. 'The Doctor,' as he was familiarly known, had practised veterinary surgery for upwards of sixty years in Stowmarket and district, and died in the house where he was born 82 years ago, his father having been in residence and practice there for many years before him.

"A sportsman in the highest sense, he was for a great number of years captain of the Stowmarket Bowls Club, and his anecdotes of the play and players of ancient days made him a welcome visitor to many a local function. Coursing was another of his pet pursuits, and he did much for that sport in the district.

"In his younger days he was an ardent Volunteer. Small of stature, but with a big heart, 'The Doctor' will be missed by a wide circle of friends."

Mr. Price asked the Minister of Agriculture, having regard to the danger to the livestock of farmers, if any steps have been taken to destroy foxes in that part of the Midlands where there has been an outbreak of foot-and-mouth disease?

Major Elliot: No, Sir. Foxes are not susceptible to foot-and-mouth disease, and though foxes—like other non-susceptible animals, birds, vermin or even human beings—might possibly carry infection mechanically, it has never been established that the disease has been spread through them.

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PROFESSIONAL TREATMENT FOR ANIMALS OF THE POOR

Mayor of Sunderland Opens Dispensary

"I have known these buildings for many years and I am delighted that the time has come when when we can change a police station into an animal hospital of this kind," said the Mayor of Sunderland (Ald. E. H. Brown) in declaring open the new animal dispensary in West Wear Street police buildings.

"Mr. W. E. Raine, Secretary of Sunderland Branch of the Royal Society for the Prevention of Cruelty to Animals, explained that the dispensary was a joint venture by the R.S.P.C.A. and the North of England Veterinary Medical Association, the Society providing the establishment and members of the Association giving their services free," continues the *Sunderland Daily Echo* of November 15th, in its report of the proceedings.

"The dispensary would be available for the treatment of animals owned by poor people who could not afford to pay for veterinary treatment. They would cater, not only for domestic pets but for every kind of bird or animal which could be brought to the dispensary for treatment.

"It was hoped that by means of what contributions could be collected at the dispensary, it would be possible to meet the maintenance costs, so that it would not become a charge on the general funds of the Association.

"The promoters of the scheme were very grateful to the Corporation who had given them the use of the premises at a nominal rent and also free of rates. This had enabled them to launch the scheme much earlier.

"'I trust this will be a very successful venture,' said the Mayor. 'We are moving along very rapidly nowadays, and acts of cruelty to dumb animals which were looked upon as very trivial a few years ago now very rightly receive severe punishment. Public opinion has changed considerably and for the better.'

"He congratulated veterinary surgeons on the way they were supporting this venture.

"Moving a vote of thanks Mrs. Challoner, Warden Law said that Mrs. Tully, of Houghton-le-Spring, had promised to pay the rent of the premises, and Miss Briggs had given and collected £20 towards the £130 cost of the dispensary. It was hoped that the remaining debt of £110 would be cleared off before the end of the year.

"Mr. J. R. Rider (Darlington), Hon. Secretary of the North of England Veterinary Medical Association, seconding the vote, said that his Association was glad to be associated with the R.S.P.C.A. in a venture of this sort.

"'We hold that the animal, be he owned by rich man or poor man, is entitled to the same

skill and attention when it is needed, and that is what we hope to be able to give. The way in which the scheme has been received in Sunderland is distinctly encouraging for the future.'

"Mr. John Ruddick (Chief Constable) said that the action of the promoters could not be other than highly commended. It would fill a long-felt want in Sunderland. 'I do not know whether you have noticed, as the police are bound to notice, but there has been an amazing improvement in the treatment of animals, particularly horses, since the War,' he said. 'It is something to be proud of that there is an almost entire absence of cruelty to animals, either deliberate or unintentional, nowadays. This type of venture should go far to stamp out what little remains.'"

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RADIUM TREATMENT OF CANCER

The Medical Research Council has recently issued a summary of the research prosecuted during 1931 in the treatment of cancer by means of radium sent by the Council to selected centres throughout the country, and the clinical sections of reports from these centres give indisputable evidence that the main lines of radium-therapy at the present time are the treatment of cancer of the breast, buccal cavity and cervix uteri, and the exploration of new lines of radium technique.

Out of a total of 2,333 patients covered by the report, 758, or 32·5 per cent., were subjected to surgical treatment alone, and 761, or 32·5 per cent., were treated solely by radium or radium emanation. During the last few years increased attention has been given to the possibilities of radon, and installations are now provided at St. Bartholomew's and the London Hospital. Probably the most outstanding feature of this technique is the adaptability it allows in the form of radioactive source. The so-called "seeds" enclosed in platinum or gold may be only ½ in. in length, and therefore very much smaller than a radium tube. In many cases they may be left *in situ* with safety in the patient and so obviate a further operation. The rays from the radium or radon are screened or filtered by means of platinum, and in a large number of cases it is now the custom to employ Columbia paste or rubber-sponge as applicators. These substances have the advantage of being moulded readily to encircle a lesion, and they maintain the radium at the required distance from the growth.

It is difficult to state when a particular cancerous growth has been cured, but it is generally held that a cure has been effected when the growth disappears completely, and shows no recurrence at the end of five years. The success which now attends the early treatment by radium of selected cases of cancer suggests that in a few years' time the frequency with which radium will be used will outnumber considerably the cases where surgery is recommended. There is one site on which, at the present time, radium treatment is valueless, that is the stomach; no beneficial results have been recorded with existing methods of technique, and much research is required to be done before an efficient line of attack can be found.

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MILK AND TUBERCULOSIS

Dr. E. Neil Reid, Tuberculosis Officer for Dumbartonshire, in his report, embraced in the report of the Medical Officer for the County, comments on the problem of tuberculosis infection from dairy herds. The urgency of the problem, he says, is evident, but opinions differ as to the most practicable solution.

Pasteurisation of milk, he states, is a weak barrier, and, being a makeshift, the objective is to render all herds tubercle free. It might be expedient for a period to have varieties of milk from tuberculin-tested cattle, 1st class, corresponding to the present "Certified"; 2nd class, a modification of the present "T.T." milk, which could be arrived at by the farmer at present financially unable to instal the plant for "Certified"; and 3rd class, milk which might be sterilised in some way for a stated transitional period. These designations could not be confused, and would leave no dougt in the public mind.

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Erratum.—On page 1359 of our issue of November 12th, in the review of the report of the work of the Education and Research Division of the Ministry of Agriculture for the year 1930-31, in line 3 of the first column, for "stall" read "staff," making the sentence to read: "The work on large animals is carried out at the Experimental Station at Pirbright, which has now been organised into two main divisions, each with a separate *staff* to enable more experiments to be conducted simultaneously without increasing the risk of accidental infection."

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ZOOLOGICAL SOCIETY TREASURERSHIP

According to the charter of the Zoological Society the President, Treasurer, and Secretary are the three principal officers. The death of Mr. Charles Drummond this autumn brought a very interesting historical succession to an end. Charles Drummond was treasurer from 1831 to 1858, when he was succeeded by his son, Robert Drummond, and by his grandson, the late Mr. Charles Drummond, in 1881.

The Council has appointed Major Albert Pam as the new treasurer. Major Pam, who has been a Fellow of the Society since 1893, was awarded its silver medal in 1914 for many valuable gifts of animals. He has always taken an active interest in the affairs of the Society, and has served on its Council at frequent intervals since 1907.

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DEVON FOOT-AND-MOUTH OUTBREAK

At a recent meeting of the Devon Diseases of Animals Sub-Committee, Mr. J. M. Penhale, M.R.C.V.S. (Ministry of Agriculture inspector), reported that five outbreaks were confirmed in the county. Four occurred in the early part of September in South Devon, and one at the beginning of October in North Devon. The restrictions were eventually withdrawn.

The numbers of animals affected were 98 cattle, 285 sheep, and 102 pigs, a total of 485, of the value of £2,784. In connection with the outbreaks a protective serum was used on three of the farms where it was considered there was a special risk of infection. There were treated 107 cattle, 83 sheep, and 42 pigs, and these remained unaffected.

Extensive inquiries were made regarding the possible origin of the outbreaks, but it was not possible to discover the source of infection.

Replying to Mr. F. W. Verney as to the general investigation of possible causes, Mr. Penhale said such an investigation was proceeding, and reports were published annually. The serum was a protective, not a curative, serum, and was used where there was special risk of infection.

Mr. Purchase said farmers in the neighbourhood of the North Devon outbreak were satisfied that everything that could be done by the authorities was done.

Mr. Verney paid a tribute to the courtesy of the officials.

EFFECTS OF SPINAL ANÆSTHETICS ON THE SPINAL CORD AND ITS MEMBRANES

In an experimental study to discover the effects of spinal anæsthetics upon the spinal cord and its membranes, four physicians (Loyal Davis, Hale Haven, J. H. Givens and John Emmett, of Chicago—*Journal of the A.M.A.*, December 12th, 1931) present an interesting study which has its applications in veterinary practice. Following is the summary given in the report:—

"The spinal anæsthetic solutions in common use to-day are hæmolytic as well as myelolytic and would seem to act on the myelin of the nerve fibres as they do on the lipoids of the red blood cell membrane, causing its dissolution.

"After the injection of the spinal anæsthetics in most prevalent use to-day into the spinal dural sacs of dogs, we have observed the following changes:—

"1. A varying degree of inflammatory reaction in the leptomeninges.

"2. Passive changes in the ganglion cells of the grey matter of the cord similar to those seen in the retrograde or so-called Wallerian degeneration.

"3. Swelling and fragmentation of the axis cylinders.

"4. Signs of degenerative changes in the fibre tracts of the cord.

"The fact that the last three of these changes were not pronounced in the cords of animals which were allowed to live ninety days speaks against their permanent nature. This is also suggested by the incomplete picture of degeneration in the ganglion cells and the absence of Marchi evidence of degeneration in the cervical and dorsal segments. However, the inflammatory changes in the leptomeninges were so constantly present that they cannot be overlooked.

"We hope to extend these studies to the spinal cords of human beings and to incorporate our results with those clinical observations which have been made in a careful neurologic examination of patients who have been operated on under spinal anæsthesia. In many instances neurologic complications have been present for as long as a year after the injection of the spinal anæsthetic."

"Epidural anæsthesia has its place in veterinary practice," comments the *North American Veterinarian*. "It serves well in the large animals particularly. It has a limited range of usefulness in canine practice. Certainly it should not be employed where other measures will serve as well or better. The recommendation made at a meeting of the A.V.M.A. a few years ago, to use epidural anæsthesia instead of catheterisation to empty the bladder in dogs, is unsound advice."

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ARMY VETERINARY SERVICE

London Gazette—War Office—Regular Army Reserve of Officers

Nov. 22nd.—Lt. J. C. Taylor to be Capt. (Nov. 4.)

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VITAMIN CONTENT OF BUTTER

"It is known that the vitamin content, and especially the vitamin D content, of milk and butter produced in northern latitudes declines in winter, when sunlight is deficient and the herds are stall-fed, and that it rises again in summer," says a recently-published report on the vitamin content of Australian, New Zealand and English butters (Medical Research Council, Special Report Series, No. 175). In these circumstances there is an evident advantage in having access to a supply of butter which, during the English winter, will afford the richness in vitamins that belongs to the summer supply. The claim has often been made that Australian and New Zealand butters offer this advantage. "That claim is now fully substantiated," comments the Medical Correspondent of *The Times*.

"Both Vitamin A (the growth-promoting factor) and Vitamin D (the rickets-preventing factor) are found in considerable amount in summer butter, which therefore constitutes a valuable food, especially for children. It is consequently a matter of satisfaction to learn that 'butter from Australia and New Zealand is equal in its content of Vitamins A and D to the best summer butter produced in Great Britain, and even to butter made from the milk of cows whose diet has been specially fortified by an artificial supply of the vitamins.'

"The report makes it clear that the Vitamins A and D are not damaged by cold storage and are unaffected by the neutralisation of acid creams before churning, as practised in Australia and New Zealand. No loss of Vitamins A or D was detected at the end of periods of cold storage or from five to ten months, and there was very little loss even at the end of three years. The breed of the dairy herd seems to have no significant influence on the vitamin content of the butter.

"Australia and New Zealand, in other words, offer the Mother Country a source of summer butter in winter which, if drawn upon, seems likely to effect a definite improvement in health. It is satisfactory to note that butter from the Southern Dominions constitutes an increasing proportion of our total supply. In 1913 some 20 per cent. of the imports of butter into the United Kingdom came from the Southern Dominions; in 1927 the proportion had increased to 30 per cent.; last year it was 44 per cent."

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Yakimoff, on the question of Spirillæ in bovine abortion, seems of opinion that *Vibrio fœtus* should be considered alongside *Br. abortus* as a cause of abortion. McFadyean and Stockman were the first to investigate abortion due to Spirillæ in sheep and also encountered the organisms associated with abortion in cattle in Ireland and Wales. Smith, in America, observed some fourteen cases of abortion from which pure cultures of the Vibrio were obtained. Subsequently various workers have described Vibrio abortion both in sheep and cattle in America and Europe.—*P. S. Synman, in the 17th Report of the Director of Veterinary Services and Animal Industry, Union of South Africa.*

Correspondence

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication.

The Editor does not hold himself responsible for the opinions of his correspondents.

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PROLAPSE OF THE UTERUS

To the Editor of the Veterinary Record.

Sir,—Calcium deficiency has a lot to be responsible for nowadays, but I did not think prolapse of the uterus would be one of them. I was always led to believe, and I have no reason to dispute the assertion, that prolapse was due to rupture of the broad ligaments. Moreover, a uterus thoroughly put back requires no clamp. What have our professors of anatomy to say?

The marvellous modern treatments of milk fever fill me with awe and wonder; the same results can be got with a bicycle pump and a few scutches of air up each teat.

With reference to Mr. Olver's case of four calves, some years ago I had a heifer with five, all dead, and each about the size of a large hare.

Yours faithfully,
J. Forbes.

Trafalgar Square, Truro.

November 19th, 1932.

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"COW WITH FOUR CALVES"

To the Editor of the Veterinary Record.

Sir,—Referring to the above note by Mr. W. T. Olver, M.R.C.V.S., Tamworth, in to-day's *Veterinary Record*, the following may be of interest.

About September, 1929, I was called to a farm in North Ayrshire, where I was then in practice, to calve a cow. The farmer said it was a case of twins, and that "they were coming fankled up."

The subject was a small, lean Ayrshire cow, 16½ years old; at first glance I thought I had a case of hydrops amnii with which to deal. However, the case was simple of solution. Calf after calf I produced from that old cow, until I had four calves, each a bull, and all alive, lying on the byre walk. The calves were each of about the usual size seen in the case of Ayrshire twin calves, but unfortunately they were not weighed.

Apart from a slight partial retention of placenta, the cow made a normal and uneventful recovery.

The four calves lived about a week, then two died late at night, and the other two on the following morning.

I saw the cow about 18 months after this event; she was by this time about 18 years old, in very good condition indeed, and safely in calf again.

Yours faithfully,
John M. McDonald.

18, Wellington Square, Ayr.

November 21st, 1932.

"VETERINARY PATHOLOGY AND BACTERIOLOGY," BY GAIGER AND DAVIES

To the Editor of the Veterinary Record.

Sir,—In the review of the above book in your issue of November 12th, 1932, the reviewer says "slips here and there suggest that the preparation of the volume was a little hurried. There is inconsistency in the use of brackets at the top of page 320."

The following is the text of Article 23 of the "International Rules of Zoological Nomenclature":—

> Article 23.—When a species is transferred to another than the original genus or the specific name is combined with any other generic name than that with which it was originally published, the name of the author of the specific name is retained in the notation, but placed in parentheses. Examples: *Tænia lata* Linné, 1758, and *Dibothriocephalus latus* (Linné, 1758); *Fasciola hepatica* Linné, 1758, and *Distoma hepaticum* (Linné, 1758).

In so far as the use of brackets is concerned, Gaiger and Davies' book is, therefore, in conformity with the International Rules of Zoological Nomenclature.

Yours faithfully,
A. W. Noel Pillers.

"Hawkestone," Queen's Drive,
Walton, Liverpool.

November 18th, 1932.

The Editor acknowledges, with thanks, the receipt of the following:—

Reports of meetings of the following Divisions, N.V.M.A. (from their respective Hon. Secretaries):—Dumfries and Galloway; Lincolnshire and District; Mid-West and South Wales.

Communications from Professor A. Komarov (Jerusalem) and Mr. R. H. Smythe (Camborne).

Diseases of Animals Acts, 1894 to 1927

SUMMARY OF RETURNS

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 1st to 15th Nov., 1932	14	14	2	184	1	1	29	36	17
Corresponding period in 1931	14	18	—	—	3	4	10	97	48
1930	20	30	1	7	3	4	27	126	63
1929	14	15	3	370	3	10	32	237	173
Total 1st January to 15th November, 1932	292	356	15	1,282	112	173	235	1,423	692
Corresponding period in 1931	409	458	97	10,649	127	225	243	1,723	736
1930	319	360	8	306	184	278	361	2,145	962
1929	390	476	35	3,388	185	363	451	2,446	1,430